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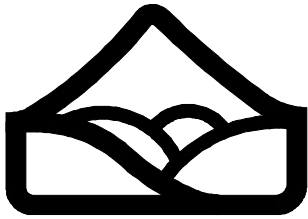
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**CITY OF
MORGAN HILL**

GENERAL

PURPOSE AND INTENT

The purpose and intent of this document is to clarify and consolidate present design criteria in the City of Morgan Hill. These standards are understood to be the minimum acceptable and more rigorous standards may be required depending on the nature of the development.

SCOPE

The Design Standards as hereinafter specified shall be used as the basis of design for all development within the jurisdiction of the City of Morgan Hill.

FINAL AUTHORITY

The Director of Public Works is the final authority on all questions which may arise as to the interpretation of these standards.

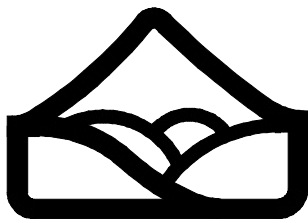
GENERAL NOTES

Required City General Notes for all improvement plans are included as Appendix A of these Design Standards.

CHECK LISTS

An Improvement Plan and Final Map checklist are included as Appendix B&C of these Design Standards. Their purpose is to familiarize the development engineer with most of the items checked by the City to ensure compliance and completeness of improvement plans and Subdivision Final Maps submitted for review.

The development engineer shall provide a checked-off copy of the appropriate checklist when submitting the plans for initial review. Any areas not applicable, not in compliance or requiring a variance from these design standards shall be so noted



STREET DESIGN STANDARDS

SECTION 1

1.100 GENERAL

All streets shall be designed in accordance with accepted engineering principles and shall conform to these Design Standards.

1.200 STREET RIGHTS OF WAY

Right-of-way widths and typical sections for various classes of streets, including private roads, shall conform to the latest edition of the City of Morgan Hill Standard Details For Construction.

1.300 ALLEY RIGHTS OF WAY

The minimum width of an alley shall be 20 feet with a 20-foot paved roadway.

1.400 STRUCTURAL SECTION

1.401 Subgrade Relative compaction for at least the top 8 inches of subgrade shall be 95%. In areas of fill, a minimum of 24 inches from finished grade shall be compacted to 95% relative compaction.

1.402 Pavement Pavement shall be designed in accordance with the procedures contained in the State of California Department of Transportation Highway Design Manual.

The Traffic Index shall be established by the Public Works Department.

A certified soils laboratory shall conduct the necessary soils report and shall recommend the pavement section and address the relative expansiveness of the soil.

The minimum structural section shall be 4-inches of asphalt concrete over 8-inches of aggregate base or an alternative full-depth asphalt concrete section of 7-inches, if approved by City.

1.500 HORIZONTAL ALIGNMENT

1.501 Intersection Angle Streets shall intersect at right angles. Curved streets shall have at least 50 feet of centerline tangent from the projected curb line of the intersecting street.

1.502 Opposing Streets All streets entering upon opposite sides of any given street shall have their centerline directly opposite each other or separated by at least 150 feet.

1.503 Street Curvature Design of curved arterial and collector streets shall be based on the State of California Department of Transportation Highway Design Manual. The minimum radius of curvature of centerline shall be 750 feet on arterials and 500 feet on collectors. Minimum radius on other streets shall be 250 feet, except hillside streets may have a minimum radius of 150 feet.

There shall be a tangent between reversing curves of at least 150 feet on arterial and collector streets, and 50 feet on all other streets.

1.504 Cul-de-sac The maximum length of a cul-de-sac street, from center of intersecting street to center of turn-around, shall be 600 feet.

1.505 Curb Return Radii

Residential and Non-Residential - Minimum radius shall be 30 feet.

Commercial - in the downtown area the minimum radius shall be 25 feet. In other areas the radius shall be determined by the City Engineer.

Industrial - Minimum radius shall be 35 feet.

1.506 MINOR STREETS Minor streets shall be laid out in such a way that their use by through traffic is discouraged.

1.600 VERTICAL ALIGNMENT

1.601 Top of Curb Grades Grades shall not be less than 0.25 percent and not greater than 20 percent point grade - 15 percent average. Where matching existing controls, the minimum grade may be reduced with the approval of the City Engineer.

Grades on opposite sides on the street shall be the same wherever practical.

1.602 Curves Where the curb radius is less than 100 feet it shall have a grade of not less than 0.50 percent.

1.603 Curb Returns The minimum fall around returns shall be 0.20 feet.

1.604 Cross Slope The standard cross slope of the street shall be 2.5 percent. Where necessary when matching existing facilities, the cross slope may vary between 2 percent and 4 percent.

1.605 Vertical Curves Vertical parabolic curves shall be used to connect grade profiles where the algebraic difference in grade rates exceeds one percent. The length of vertical curve required shall be determined by the following:

Class of Street	Minimum Stopping Sight Distance	Minimum Length of Curve
Arterial and Industrial	350 feet	200 feet
Collector	200 feet	100 feet
Minor	100 feet	100 feet
Cul-de-Sac	100 feet	100 feet

1.700 CURB, GUTTER AND SIDEWALK

Curb, gutter and sidewalk shall be installed in conformance with the City of Morgan Hill Standard Details For Construction.

1.701 Curb and Gutter

Square-type curb and gutter rather than rolled curb shall be installed along frontages.

Depressed-type curb and gutter, 1" minimum height, shall be installed at all driveway locations.

1.702 Sidewalk Minimum sidewalk widths shall be 5 feet (Monolithic curb, gutter and sidewalk; measured from face of curb) in residential and industrial/commercial areas and 10 feet in the downtown core, unless specified otherwise by the Planning Division. Sidewalk widths should provide a 4 foot clearance around street lights and fire hydrants for disability access.

1.703 Pedestrian Ramp for the Handicapped Pedestrian ramps for the handicapped shall be installed according to the latest Americans with Disabilities Act (ADA) Standard.

1.704 Replacement and Repair Where existing curb, gutter, sidewalk and driveways do not meet the current City standards and are in need of repairs, it shall be the developer's responsibility to remove and replace the deficient curb, gutter and sidewalk. Where curb, gutter, sidewalk and/or driveways are removed, the concrete shall be removed to the nearest expansion, weakened plane or construction joint or sawed at the nearest score line to a minimum depth of 1-1/2 inches.

1.800 DRIVEWAY APPROACH STANDARDS

The following driveway approach standards are not applicable to freeway or controlled access highways where access is limited by deed restrictions or other controls.

The number and width of permitted driveway approaches is regulated by the Public Works Department and shall be based on the needs of the parcel served. They shall not be detrimental to

the abutting street's capacity, safety, and/or efficiency.

Driveway approach width is measured at the curb line and includes only the width of the fully depressed section.

The City Engineer may modify any of the following standards to improve traffic flow or because of special or unusual conditions.

1.801 Width

Industrial/Commercial - Maximum driveway approach width is 36 feet. Minimum driveway approach width is 16 feet.

Residential - Maximum driveway approach width is 24 feet. Minimum driveway approach width is 16 feet.

1.802 Distance from Curb Returns

Intersecting Streets - Driveway transitions are not permitted closer than 10 feet from the nearest BCR/ECR on residential streets.

Commercial and industrial driveway approaches on arterials may be prohibited within 100 feet from the projected right-of-way line of the intersecting street where the intersection is presently signaled or is planned for signalization, or where intersection capacity is critical.

1.803 Distance from Utility or Safety Devices The driveway transition shall clear all public facilities such as electroliers, traffic signal standards, utility poles, fire hydrants, and street trees by a minimum of 3 feet. Any relocation of public facilities required to maintain such clearance shall be at the expense of the owner who is installing the driveway.

1.804 Distance Between Driveways A minimum of 4 feet of full curb height shall be maintained between the transitions of adjoining driveways. No driveway approach shall be constructed which results in a curb length between transitions of 14 feet to 22 feet. Where practical, the total space between driveway transitions shall be in multiples of 22 feet, plus 4 feet. ($S=22X + 4$)

1.805 Distance From Property Line A minimum of 2 feet of full curb height shall be maintained between the property line and driveway transition.

1.806 Common Use Driveways Common use driveways may be permitted in special cases.

1.807 Parking Lots Parking lot driveways shall be designed in such a manner as to preclude the use of the abutting public street for vehicular circulation solely related to the parking lot.

1.808 Grade Driveway grades shall be designed to keep the automobile from dragging or

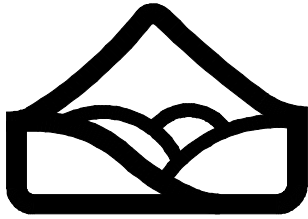
“bottoming out” on the street or driveway. The algebraic sum of the street cross slope and driveway apron slope shall not exceed 15 percent.

1.900 STREET LIGHTING

All electroliers shall consist of a high pressure sodium luminaire with electrolier ownership dedicated to the City of Morgan Hill. Any proposed deviation on street light type must be approved by the City.

1.1000 EROSION CONTROL

An erosion control plan shall be required prior to any physical development of a property planned between October 15th and May 1st. Said plan shall meet the minimum standards and specifications of the Loma Prieta Resource Conservation Distr



**CITY OF
MORGAN HILL**

WATER DESIGN STANDARDS

SECTION 2

2.100 GENERAL

Water facilities shall be designed in accordance with accepted engineering principles and shall conform to these Design Standards.

All materials shall conform to current American Water Works Association Standards.

All installations shall conform to the City of Morgan Hill Standard Details for Construction.

The latest edition of the California State Department of Health Services “Criteria for the Separation of Water Mains and Sanitary Sewers” shall take precedence in horizontal and vertical alignment issues.

2.200 VERTICAL ALIGNMENT

The minimum cover on water mains shall be 36 inches. When crossing a sanitary sewer it is desirable that the water main be installed above the sanitary sewer with a clearance of 12 inches.

2.300 HORIZONTAL ALIGNMENT

Water mains shall be installed within street rights-of-way unless an easement installation is specifically approved by the City Engineer. Alignment shall be parallel to the street centerline wherever possible.

The alignment may vary, but in no case shall there be less than 10 feet horizontal clearance to a sanitary sewer, or 6 feet horizontal clearance to a storm drain.

2.400 PIPE

Water mains shall be sized according to the City's Master Water Plan and Grid system. For waterlines other than the 10 inch or 8 inch grid, a 6 inch size line may be used if looped.

All pipe shall be Ductile Iron Pipe Class 50. Cast iron pipe or mechanical joint cast iron pipe may be used with specific approval of the City Engineer.

2.500 WATER SERVICE

The minimum size service is 1 inch.

2.600 FIRE HYDRANTS

All fire hydrants must be supplied from the largest available main; minimum 8 inch.

Fire hydrant spacing and distribution shall be determined as follows:

1. The maximum hose lay shall be 150 feet in high density residential, commercial, industrial zoning or high-value districts, with a maximum fire hydrant spacing of 250 feet.
2. The maximum hose lay shall be 250 feet in residential areas with a maximum fire hydrant spacing of 500 feet.
3. On divided streets, planned divided streets or state highway, the above spacing shall apply to both sides of the street.
4. A fire hydrant shall be located within 200 feet of the radius point of all cul-de-sacs.
5. Distribution main, fire hydrant and fire flow requirements shall also conform to the recommended standards of Insurance Services Office and National Fire Code.
6. On-site hydrants may also be required in conformance with ISO-NFC.

Fire flow and fire hydrant distribution, including the number of hydrants required and specific locations, shall be approved by the City Engineer and the Fire Chief.

2.700 VALVES

Valves shall be spaced and located in conformance with the following criteria:

1. 500-foot maximum spacing.
2. Water mains shall be valved on each side of railroad, freeway and canal right-of-way crossings.
3. At "tees", 3 valves will be required.
4. At "crosses", 4 valves will be required.
5. At locations so that future tie-ins will not interrupt service and provide isolation and pressure testing of new systems.

2.800 DEAD-END RUNS

Permanent dead-end runs shall be no longer than 600 feet unless specifically approved by the City Engineer. Eight inch mains shall be used on dead-end runs which serve fire hydrants. Reasonable looping of water mains will be required.

2.900 BLOW OFFS

Blow-offs shall be constructed at the end of all dead-end runs.

2.1000 AIR RELIEF VALVES

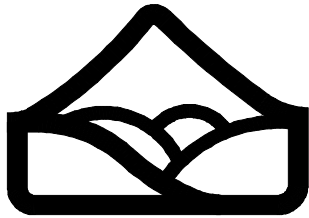
Air relief valves shall be installed at high points.

2.1100 THRUST BLOCKS

Thrust blocks shall be installed in conformance with the City of Morgan Hill Standard Details for Construction.

2.1200 WATER LINE ACCEPTANCE TEST

Water lines shall be pressure tested, disinfected, flushed, and tested for bacteria in conformance with the City of Morgan Hill Standard Details for Construction prior to final acceptance by the City.



**CITY OF
MORGAN HILL**

SANITARY SEWER DESIGN STANDARDS

SECTION 3

3.100 GENERAL

Sanitary sewers shall be designed in accordance with accepted engineering principles and shall conform to these Design Standards.

Storm water shall not be connected or discharged into a sanitary sewer.

The latest edition of the California State Department of Health Services "Criteria for the Separation of Water Mains and Sanitary Sewers" shall take precedence in horizontal and vertical alignment issues.

Engineering calculations used for the design of all proposed sanitary sewer systems, shall be submitted to the City Engineer. The calculations shall include the following items:

1. A plan, preferably 1" = 100' scale, showing the proposed street system, tributary sub-areas, existing and future tributary areas, outside the project limits, zoning, projected land use, and any features affecting the system design.
2. Design flows at major junction points including flows coming from outside the project limits.
3. Size, length, slope, and invert elevations of all proposed lines and locations of manholes.

3.200 AVERAGE FLOW

Where possible, the average residential flows shall be computed on a per capita basis using a minimum, of 90 gallons per capita per day. Commercial and light industrial shall be computed at 1500 gallons per acre per day. All other industrial shall be computed utilizing 2500 gallons per acre per day. When the exact density is not known, the zoning map and the general plan shall be used to determine the appropriate densities. Multi family residential (≤ 2 bedroom/unit) shall be 2.75 persons per unit. All other residential uses shall be 3.25 persons per unit.

Schools shall be computed at 45 gallons per capita per day. Churches shall be computed at 23 gallons per capita per day.

The averages indicated above are minimum flows and in some situations may have to be increased due to higher densities or differing land uses.

3.300 DESIGN FLOW

The total design flow shall be determined by multiplying the average design flow by a peak factor obtained from the following graph:

Peak Factor Table (cfs)	
Q _{av}	Pf
0-0.1	3.50
0.1-0.3	2.80
0.3-0.6	2.60
0.6-0.9	2.50
0.9-1.2	2.40
1.2-1.5	2.35
1.5-1.9	2.30
1.9-2.4	2.25
2.4-3.0	2.20
3.0-3.8	2.15
3.8-4.9	2.10
4.9-6.3	2.05
6.3-7.5	2.00
7.5-8.3	1.90
8.3-9.2	1.98
9.2-10.3	1.96
10.3-11.4	1.94
11.4-12.7	1.92
12.7-14.2	1.90
14.2-15.9	1.88
15.9-18.0	1.86
18.0-20.0	1.84

Note: The accuracy of hydraulic calculations does not warrant interpolation of Peak Factor.

3.400 VERTICAL ALIGNMENT

The minimum cover on sanitary sewer lines shall be 3 feet. When minimum cover cannot be achieved, polyurethane-lined ductile iron shall be used, or PVC C900 upon City Engineer approval.

When crossing a water main, the sanitary sewer shall be installed below the water main with a minimum clearance of 12 inches.

At points of convergence of pipes of various sizes, the tops of the pipe elevations shall match within a manhole structure.

3.500 HORIZONTAL ALIGNMENT

Sanitary sewers shall be placed within street rights-of-way unless placement in an easement is specifically approved by the City Engineer.

Alignment shall be parallel to the street centerline wherever possible.

Curved sewers are allowed in curved streets when curvature does not exceed pipe manufacturer's recommendations.

Sanitary sewers shall not be constructed within 50 feet of any existing or proposed well site. Installations within 200 feet of an existing well or future well site shall be brought to the attention of the City Engineer and shall be designed under his direction and in accordance with the California State Department of Public Health recommendations.

3.600 SLOPE

Sanitary sewers shall be designed to flow at, $d/D=0.7$, with a minimum velocity of 2.0 feet per second. Minimum slope shall be .002. Use of lower velocities shall have the specific approval of the City Engineer. The maximum velocity shall be 10 feet per second.

3.700 PIPE

Pipe used for sanitary sewers shall have a minimum diameter of 6-inches when located in the street right-of-way. The pipe shall have rubber gasket joints and shall conform to the latest edition of the following ASTM Standards:

- | | | |
|----|--------------------------------------|-----------------------------|
| 1. | ABS SOLID WALL PIPE | D 2751 (SDR 26) |
| 2. | ABS or PVC COMPOSITE PIPE (TRUSS) | D2680 (SDR 23.5 min.) |
| 3. | PVC SEWER PIPE | D 3034 (SDR 26) |
| 4. | DUCTILE IRON PIPE (Gravity or Force) | Class 50 Polyurethane-Lined |
| 5. | PVC C900 (Gravity or Force) | AWWA C900 |

6. VITRIFIED CLAY PIPE (Extra Strength) C 700 (use of VCP must be approved by City)
Compression joint for Bell & Spigot
Pipe (15" and larger)

Compression Couplings for Plain End C 425
Pipe (15" and larger)

Note: Polyurethane-Lined Ductile Iron Pipe shall be used for all Force Mains, or PVC C900 upon City Engineer approval. The minimum cover for ductile iron pipe and PVC C900 is 2 feet.

3.800 BUILDING LATERAL

The minimum size lateral shall be 4 inches and installed per Standard Detail S-2.

3.900 MANHOLES

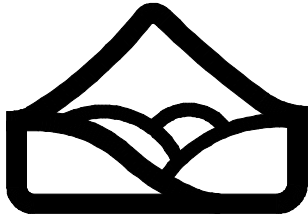
Manholes shall be placed at the intersections of all sanitary sewers, at all locations where there is change in size, grade or direction and at the ends of all permanent lines.

Manhole spacing shall not exceed the following limits:

<u>Diameter</u>	<u>Maximum Spacing</u>
10" and under.	400 feet
12" to 18".	600 feet
21" and over.	900 feet

Precast manhole bases may be permitted subject to City Engineer approval.

Manholes shall be constructed at all service lateral connections where the main line is not at least 1.5 times the size of the service lateral.



**CITY OF
MORGAN HILL**

STORM DRAIN DESIGN STANDARDS

SECTION 4

4.100 GENERAL

All drainage facilities shall be designed in accordance with accepted engineering principles, and shall conform to these Design Standards.

4.200 SUBMITTAL OF DRAINAGE CALCULATIONS

Drainage calculations are required for any new subdivision or development. Submittal of drainage calculations shall include the following items:

1. Hydrology and hydraulic calculations together with assumptions, charts, tables, references and methods used.
2. A plan, preferably 1" = 100' scale, showing the proposed street system, existing and proposed drainage system, tributary sub-areas (including offsite drainage), and peak flow in all pipes.
3. A plan showing the hydraulic grade line (HGL), the proposed storm drain including slopes and sizes and top of curb in profile. Elevations should be shown at all changes in slope of the HGL, proposed storm drain and top of curb.

4.300 DESIGN FLOW

The Rational Method ($Q=CiA$) or SCS method shall be used to determine the quantity of runoff (Q) in designing a storm drain system as determined by the City Engineer.

Values for the coefficient of runoff © area as follows:

Parks and natural ground	0.1
RE	0.3
R-1 (Residential)	0.5
R-2 (Residential)	0.6
R-3	0.70
Schools & Churches	0.50
Industrial	0.90
Commercial	0.80

Values for rainfall intensity (I) for corresponding time of concentration shall be taken from the following Rainfall Intensity table. Maximum roof to gutter time of 20 minutes shall be used.

The Area (A) shall be the tributary drainage area in acres.

Manning's formula shall be used to determine the relation of design flow, slope, velocity and pipe diameter. The friction factor, "n", shall be 0.013 for concrete pipe.

The underground system shall be designed to handle a 10-year storm.

The streets shall be designed to carry a 100-year storm. The streets should carry this water to a release point where the water can get back into the natural water course or flood control facility. These overland flows should be kept in their original drainage basin if possible.

RAINFALL INTENSITY TABLE							
TC MIN	I₅	I₁₀	I₁₀₀	TC MIN	I₅	I₁₀	I₁₀₀
20	0.897	1.244	1.897	90	0.495	0.696	1.111
21	0.880	1.221	1.864	100	0.475	0.668	1.070
22	0.860	1.195	1.828	110	0.458	0.645	1.035
23	0.851	1.183	1.811	120	0.442	0.623	1.002
24	0.834	1.159	1.778	140	0.416	0.587	0.949
25	0.818	1.138	1.747	160	0.394	0.557	0.904
26	0.811	1.127	1.733	180	0.376	0.535	0.868
27	0.796	1.108	1.705	210	0.354	0.502	0.821
28	0.783	1.089	1.679	240	0.336	0.477	0.783
29	0.776	1.081	1.666	300	0.308	0.437	0.723
30	0.764	1.064	1.642	360	0.286	0.408	0.678
32	0.747	1.040	1.608	420	0.269	0.384	0.642
34	0.725	1.011	1.567	480	0.256	0.365	0.612
36	0.711	0.991	1.539	540	0.244	0.349	0.587
38	0.697	0.973	1.512	600	0.234	0.335	0.565
40	0.682	0.952	1.482	660	0.225	0.323	0.546
45	0.651	0.910	1.421	720	0.218	0.312	0.530
50	0.624	0.873	1.369	840	0.205	0.294	0.501
55	0.600	0.841	1.322	960	0.194	0.279	0.478
60	0.581	0.814	1.283	1080	0.186	0.267	0.459
70	0.546	0.766	1.213	1200	0.178	0.256	0.442
80	0.519	0.728	1.158	1320	0.171	0.247	0.427

Note: Formulas use for rainfall intensity data on following page

TC= Time of concentration (Minutes) I_5 = 5 Year Storm Intensity (Inches/Hour)

$I=K/T^N$ where: I= Rainfall Intensity (in/hr)

T= Duration (hours)

K= Function of Mean Annual Precipitation and Frequency

N= Function of Mean Annual Precipitation

K and N Values for the City

5 year	K=0.581	N=0.395
10 year	K=0.814	N=0.386
100 year	K=1.283	N=0.356

4.400 STREET DESIGN FOR FLOOD CONTROL

The lowest street within a drainage basin shall be designed with a minimum overall gradient of 0.25 percent toward the nearest existing or proposed 100 year design capacity flood control facility.

4.500 PAD ELEVATION AND LOT GRADING

House pad elevations shall be determined by the following criteria while assuming construction of a slab on grade foundation (first floor 7 inches above pad). The latest Flood Insurance Rate Map shall be used.

1. In an AO zone, the lowest floor shall be at least 1 foot higher than the depth number specified on the FIRM or 1 foot above the nearest high point in the drainage release path, or 2% higher than lowest top of curb, whichever is highest.

2. In an A zone, the lowest floor shall be at least 1 foot higher than the base flood elevation, as determined by this community or 1 foot above the nearest high point in the drainage release path, or 2% higher than lowest top of curb, whichever is highest.

3. In all other zones, the lowest floor shall be at least 1 foot higher than the base flood elevation, or 1 foot above the nearest high point in the drainage release path, or 2% higher than lowest top of curb, whichever is highest.

Minimum grade of lots shall be 1%. All slopes are no greater than 2:1 or per Soils Report.

4.600 OBSTRUCTIONS

Though local drainage facilities will be designed for a ten year storm, special consideration shall be given to obstructions such as railroads, major freeways, roads and other areas where the natural drainage flow is blocked by manmade features. These obstructions shall be noted in the master plan with all drainage structures through them designed to convey the 100 year storm.

4.700 HYDRAULIC GRADE LINE

All storm drains shall be designed for the maximum storm water entering the drain at the point of concentration and shall have a minimum of 1 foot of freeboard between the top of curb and the Hydraulic Grade Line. However, exceptions to the above standards as they relate to "bubble ups" shall be approved by City Engineer.

4.800 VERTICAL ALIGNMENT

The minimum cover on main line storm drains shall be 2-1/2 feet from finished grade.

Catch basin laterals that have less than 24 inches of cover from finished grade shall be encased in concrete.

A minimum vertical clearance of 3 inches shall be maintained between a sanitary sewer, water main, or other underground utility.

At points of convergence of pipes of various sizes, the tops of the pipe elevations shall match unless specifically approved by the City Engineer. This does not apply to catch basin laterals.

4.900 HORIZONTAL ALIGNMENT

Storm drains shall be placed within street rights-of-way unless placement in an easement is specifically approved by the City Engineer.

Alignment shall be parallel to the street centerline wherever possible.

Curved storm drains are allowed in curved streets when curvature does not exceed the pipe manufacturer's recommendations.

4.1000 SLOPE

Storm drains shall have minimum slopes equal to that necessary to give a velocity of 2.0 feet per second when flowing half full regardless of the slope of the Hydraulic Grade Line. Pipes with lower velocities shall use available fall and have the specific approval of the City Engineer.

Storm drains shall have a minimum slope of .002

Catch basin laterals shall have a minimum fall of 0.10 feet between the catch basin and manhole. Desirable fall is 0.30 feet or more.

4.1100 PIPE

The minimum size for storm drains shall be 15-inch diameter.

All catch basin laterals shall have a minimum diameter of 15 inches.

All pipe shall conform to the following ASTM specifications:

1. CONCRETE PIPE

Reinforced pipe with rubber gasket joint	C 76
Rubber Gasketed Joints	C 361 Joint & C 443 Gasket

Cast-in-place concrete pipe, 24 inches and larger, may be used when specifically approved by the City Engineer. Cast-in-place pipe will not normally be permitted in existing streets.

4.1200 MANHOLES

Manholes shall be placed at the intersections of all storm drains, at all locations where there is a

change in size, change in horizontal or vertical alignment and at the ends of all permanent lines.

Manhole spacing shall conform to the following limits:

<u>Diameter</u>	<u>Maximum Spacing</u>
15" to 30"	400 feet
33" to 54"	600 feet
60" & over.	1000 feet

Manholes will not be required where a single catch basin meets the following criteria:

1. Size of catch basin lateral is 15 inches.
2. Storm drain has a diameter of 48 inches or larger.
3. No other existing or future catch basins are within 100 feet along storm drain centerline.

All storm drain manholes shall be constructed in conformance with Standard Detail SD-1 and SD-2 unless otherwise approved by the City Engineer.

4.1300 CATCH BASINS

Side inlet catch basins shall be located at all low points and shall be spaced in such a manner that design flows will not encroach into the travel lanes.

The total gutter run contributing to any catch basin shall not exceed 1,000 feet. It is desirable to locate catch basins on the BCR or ECR which will intercept the most runoff and also keep the main pedestrian crossing as dry as possible.

Drop inlet catch basins shall be constructed only in alleys or as temporary installations on unimproved streets where curb and gutter has not yet been installed.

4.1400 SIPHONS

Inverted siphons are not permitted.

4.1500 ON-SITE DRAINAGE

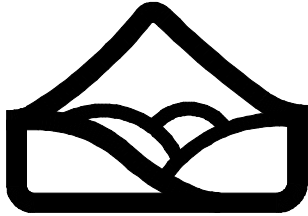
All developed areas larger than one acre shall tie on-site drainage into the City of Morgan Hill storm drain system.

4.1600 PONDING BASINS

Ponding basin on private or public property shall be designed using the following criteria:

1. A 24-hour, 25-year storm, total rainfall of 4.79 inches shall be used if a reasonable outlet is provided (detention). If no disposal other than evaporation, percolation or irrigation is provided (retention), a 24-hour, 100-year storm, total rainfall of 5.59 inches, shall be used. 25% of the total basin volume shall be considered as freeboard.
2. The maximum water surface of the basin shall be 1 foot below the elevation of the top of curb at the lowest catch basin inlet within the tributary area and a maximum

- of one foot above the design hydraulic grade line at the basin.
3. Fencing shall be provided around all basins greater than 3 feet in depth.
 4. Adequate “all weather” access shall be provided.
 5. The tributary drainage system shall be designed to connect to the City's future storm drainage system.
 6. The maximum slope ratio for turfed or landscaped side slopes shall be 4:1.



**CITY OF
MORGAN HILL**

HILLSIDE DEVELOPMENT STANDARDS

SECTION 5

5.100 GENERAL

All hillside development shall conform to these Design Standards.

5.200 ENVIRONMENTAL CONSTRAINTS

No building, private street or driveway shall be constructed in an area identified by the General Plan Environmental Constraints Map as having any of the following characteristics, unless an on-site soils and geologic investigation proves otherwise:

1. Severe soil instability.
2. High erosion potential.

No building, private street or driveway shall be constructed on land determined to be a landslide area or on land in the path of a landslide, as identified by an on-site soils and geologic investigation or by the United States Geologic Survey.

No building, private street or driveway shall be constructed on land having slopes in excess of 20 percent; provided however, that minor encroachments of the facility onto slopes in excess of 20 percent may be permitted where the Community Development Department finds that the proposed encroachment will not conflict with the purposes and intent of Ordinance No. 568 N.S. This provision shall not apply to lots existing prior to adoption of the ordinance. Development of such lots shall be regulated by Section 4.22.6 (d) or Ordinance No. 568, N.S.

5.300 LAND MODIFICATION RESTRICTIONS

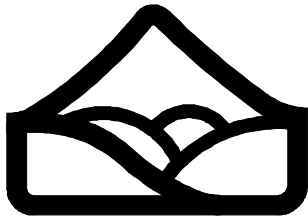
5.310 Lots with Greater Than 20% Ground Slopes - That portion of a lot having a ground slope in excess of 20 percent shall not be altered in any way by grading, removal or alteration of natural features such as streams, rock outcrops, ridge lines and drainage swales. The removal of natural vegetation as part of a fire protection program must be approved by Central Fire District. Correction or stabilization of a geologic or seismic hazard for public safety purposes must be approved by the Planning Commission.

If the entire lot contains slopes in excess of 20 percent and the lot is a lot of record legally created in accordance with applicable regulations of the City at the time of its creation, one dwelling unit and those accessory uses permitted may be constructed on such site provided that the proposed method of building and site preparation conforms with recommendations acceptable to the

Community Development Department and recommendations contained in a geologic report by a qualified and licensed engineering geologist.

A transfer of Development Rights or Residential Planned Development (RPD), shall be attempted prior to application for Community Development Department approval.

5.302 Cut and Fill Slopes - Cut and fill slopes shall not be steeper than 2:1 unless stabilized by a retaining wall or cribbing approved by the City Engineer. Cut and fill slopes shall return to the natural slope as soon as possible.



**CITY OF
MORGAN HILL**

IMPROVEMENT PLAN REQUIRED GENERAL NOTES

APPENDIX A

The following General Notes are required on all improvement plans submitted for approval to the City of Morgan Hill Public Works Department and shall not be modified. Additional notes may be added under the title of "Project Notes". However, conflicts between the City's required General Notes and the Project Notes shall be resolved by the City Engineer.

1. Temporary Bench Mark - Based on a City approved benchmark as shown on these plans.
2. All existing elevations shall be field verified by contractor unless otherwise noted.
3. All survey monuments shall be installed at locations shown on the corresponding final map before acceptance of the subdivision.
4. Contractor shall not destroy existing permanent survey monuments.
5. All work shall conform to the latest edition of the City of Morgan Hill Standard Details for Construction which are hereby made a part of these plans. Deviations from the Standard Details must be approved by the City Engineer.
6. Developer shall arrange for a pre-construction meeting with the City Engineer (Municipal Code 17.32.250b) prior to commencing any construction. An encroachment permit shall be obtained from the Public Works Department upon completion of said meeting and prior to construction of any improvements within an existing or offered for dedication right-of-way, public utility easement or public service easement.
7. A grading permit shall be obtained from the City of Morgan Hill Building Division prior to any grading of building pads. Applicant for the grading permit shall provide a plan review letter from the Soils Engineer. A grading permit does not give contractor permission to commence off-site (street) grading. Only upon City approval of the improvement plans and completion of a pre-construction meeting, shall contractor commence off-site grading.
8. Contractor shall notify the Public Works Department 48 hours prior to commencement of any work phase. At that time, an "Inspection Request Form" shall be completed to ensure proper scheduling of an inspection with the City Engineer's Representative.
9. Contractor shall preserve all surrounding property by confining operations to within the "Limits of Work". Contractor shall be responsible for maintaining access for all adjoining residents, places of business, and properties at all times and in a safe manner. Contractor shall make proper notification at least 24 hours in advance of any interruption in access or service to the above property owners as well as to the City Engineer's Representative.

10. Contractor shall only use equipment provided with a spark arrestor device to reduce a potential fire hazard.
11. **Right of Modification:**
Approval of this plan does not release Subdivider of the responsibility for correction of mistakes, errors, or omission, contained therein. If during the course of construction, public interest requires a modification of or a departure from these improvement plans or the City Standard Details for Construction, the City Engineer shall have the authority to require such modifications and departures and to specify the manner in which the same is to be made.
12. **Off-Site Water & Dust Control:**
Contractor shall provide a water truck onsite at all times. Contractor will be allowed to draw water from the City of Morgan Hill Water Distribution System only after obtaining a hydrant meter from the Public Works Department and an inspection of the water truck for a proper backflow device or "air-gap" filling pipe. Developer has paid for "off-site" construction water which shall not be used for building construction. Contractor shall keep down dust from construction activity to the maximum extent possible. Contractor shall clean all existing streets, curbs, gutters, and sidewalks affected by the project at the end of each working day.
13. **Material Storage:**
No material shall be stored near the edge of pavement, traveled way, sidewalk, driveway, or shoulder line which may create a hazard for vehicular and pedestrian traffic.
14. **Traffic Control:**
Contractor shall submit a traffic control plan for approval to the Public Works Department a minimum of 5 days prior to any work within an existing public street. The plan shall be signed by a licensed Traffic Engineer when it involves an arterial street. Contractor shall provide all necessary traffic control in accordance with the latest edition of CALTRANS "Manual of Warning Signs, Lights, and Devices for Use in Performance of Work Upon Highways", while working within the public right-of-way. Two traffic lanes (10' min.) shall be open to vehicular traffic during all hours, weekends, and holidays. One lane one way traffic, may be permitted under the control of not less than 2 (two) competent flagmen during construction operations. Street closures and detours shall only take place upon City Engineer approval and Police Department coordination.
15. **Trench Excavation:**
Contractor shall exercise diligence in reviewing the approved Soils Report and other available resources to familiarize himself/herself with the soil conditions to be encountered in the course of work identified in these plans. Contractor shall not cause damage to adjacent trees or existing structures above or below grade during trench excavation. All rocks, boulders, and large stones encountered shall be removed to provide a clearance of 6 inches around the pipe. The trench bottom shall be refilled to grade with sand, pea gravel, or other approved granular material. Clean 1/4" or 1/2" pea gravel shall be used in areas of moist condition, or were the soil has a history of sub-surface water. If the bottom of the trench is found to consist of wet or unstable material incapable of properly supporting the pipe, the material shall be removed to a minimum depth of 12 inches below the unstable layer for the full width of the trench and replaced with approved granular material. Trench excavation material deposited adjacent to the trench shall be placed and located to prevent spillage into the open trench.

16. **Trench Safety:**

It shall be Contractor's responsibility to provide all necessary trench safety measures for excavations. All trench safety measures shall be in accordance with the latest CAL-OSHA guidelines. Contractor shall provide evidence of a CAL-OSHA trenching permit at the pre-construction meeting.

17. Excavations within the public right-of-way shall be backfilled, compacted, and temporarily paved with cold mix "cut back" type A.C. to allow for vehicular and pedestrian traffic prior to 4:00 P.M. The use of trench plates is allowed, provided the Contractor covers all edges of the plates with cold mix material. It shall be the Contractor's responsibility to maintain on a daily basis, including weekends, the amount of material necessary to maintain the trench surface flush with the existing street or sidewalk. In addition, the Contractor shall respond to and correct shifting trench plates regardless of the time of day. If Contractor fails to correct sinking backfill material or shifting trench plates in a timely manner, City shall reserve the right to correct the problem and back charge the contractor.

18. **Joining Existing Pavement:**

Existing pavement which is to be joined by new pavement shall be saw cut vertical to provide straight, true and neat joints. Overlapping of existing pavement without saw cutting or grinding shall not be permitted. The vertical edges shall be tacked prior to paving. Terminals of all surfacing indicated on the plans shall join any existing surface in a smooth butt joint. Conform paving by method of abrasive grinding will be allowed upon approval of the City Engineer.

Sanitary Sewers:

19. All manholes, sewer mains, and laterals must pass a leakage test as described in the City of Morgan Hill Standard Details for Construction. After all backfill, testing, and pavement restoration has been completed, the contractor shall flush and clean all sewer lines 24 inches or less in diameter by the "Wayne Ball Method". After the leakage test, but prior to paving, a television inspection shall be performed at all locations of newly installed sewer mains at contractor's expense. The underground contractor must keep an accurate record of manholes and the distance between them and each wye branch lateral, and their direction.
20. Before any upstream sewers are constructed, the contractor shall verify the elevation and location of existing sewer lines to be connected.
21. The end of each new lateral shall be marked as shown in Detail S-2. The concrete contractor shall stamp an "S" on the face of curb directly above the lateral.

Water Lines:

22. Contractor shall not turn off or on any valves belonging to the City's water system. Only Department of Public Works personnel shall open the necessary valves to connect new lines. Failure to follow this requirement shall be considered an "unlawful connection" and may result in issuing of a citation and fines as specified in Section 13.04 of the Morgan Hill Municipal Code.
23. Connections requiring shut down of the system shall be done between the hours of 12:00 Midnight and 6:00 AM, and only upon coordination with the Department of Public Works.

24. All water lines shall be tested after completion of the trench backfill and compaction of the final base material, but prior to placement of the final roadway surface.
25. Contractor shall place marker posts adjacent to all air relief valves and blow off assemblies along water mains located in unimproved areas or fields. The posts shall be pressure treated redwood 4"x4"x6', painted white, buried 2'-6", and inscribed with "W/A.V." (for air relief valves) or "B.O." (for blow off assemblies), in 3 inch high carved letters painted blue.
26. The concrete contractor shall stamp a letter "W" on the face of curb directly above the water service.

Backfill & Compaction:

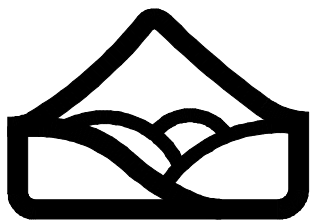
27. Backfill material shall be hand placed and compacted up to at least 6" above the pipe. When using native soil as trench backfill, the minimum sand cover shall be 12".
28. Jetting and/or flooding of trench backfill material will be permitted only if approved by the Soils Engineer and City Engineer.
29. Any excess excavation material may be deposited onsite in areas and at depths designated by the Owner, and with approval of the City Engineer.
30. The minimum relative compaction for trench backfill, subgrade and base material shall be 95% throughout the project unless recommended otherwise in the Soils Report and approved by the City Engineer.
31. If trench backfill material is 100% sand, the City shall conduct compaction tests of the lifts specified. If the trench backfill material is native soil, contractor shall provide compaction test results of the lifts specified in the soils report to the City Engineer from a certified testing laboratory at contractor's expense.
32. Any aggregate base that becomes contaminated during construction shall be removed and replaced with uncontaminated base.

Erosion Control

An erosion control plan shall be required prior to any physical development of a property planned between October 15th and May 1st. Said plan shall meet the minimum standards and specifications of the Loma Prieta Resource Conservation District. Contractor shall be responsible for initiating the required erosion control measures during the above time period.

Electroliers:

All electroliers shall be installed by the Developer (rate schedule LS-2C, 120V, high pressure sodium, at the locations shown on these plans). See Electrical Section of the Standard Details.



CITY OF
MORGAN HILL

CHECK LIST FOR IMPROVEMENT PLANS

APPENDIX B

Planning Division Name: _____ Planning No: _____

Subdivision Name: _____ Tract No: _____

Public Works Project Number: _____ Assessor's Parcel No: _____

Tentative Map Approval Date: _____

Engineering Firm: _____ Job Number: _____

Project Engineer: _____ Telephone Number: _____

Note: Digital file submittals shall be *AutoCad Release 12* (minimum) on standard 3 ½" diskette.

(Appropriate sections to be checked off by the Engineering firm and provided along with 1st submittal)

Checked By/Date/Comments

() 1st Check () 2nd Check () 3rd Check

7 Sets of Improvement Plans with Landscape Irrigation Plan

Sets of Hydrology Map and Calculations

Retention Pond Design Criteria on Plans

Copy of Engineer's Estimate

Copy of Soils Report and Pavement Design Calculations (Arterials)

Set of Sewer Map and Calculations

Copy of Final Conditions of Approval (Resolutions)

Copies of Fireflow Calculations (commercial)

REVIEWED BY:

1. Utilities Systems Manager

2. Engineering Division Inspection Section

3. Central Fire District

4. Sent to P.G. & E., Telephone & Cable T.V.

5. Other Agency Review

a. Santa Clara Valley Water District

b. Other (Specify)

GENERAL (Applicable to every sheet)

1. Sheet size is 24"x36" with 2" space on left side of border and 1" space on right side
2. Title Block/Border of each sheet (contains as a minimum):
 - a. City of Morgan Hill Public Works Department logo
 - b. City Engineer's signature block
 - c. Design Engineer's signature block
 - d. Design Engineer's seal, R.C.E. number and original signature
(stamped signatures are not acceptable on final submittal)
 - e. Horizontal scale (1"=40' max) & Vertical scale (1"=4' max)
 - f. Name of Subdivision or Project and Sheet Name
3. Stationing referenced to nearest intersection
4. All offset distances measured from center line
5. City Standard Details referenced correctly & unchanged (with border)
6. Details other than standard, properly detailed

TITLE SHEET

1. Required City General Notes on left side (compare to App. A)
2. Project Area Diagram:
 - a. Project limits shown as well as any City-County boundaries
 - b. Phase boundaries (if applicable)
 - c. Lots and lot numbers
 - d. New/existing abutting right of ways, easements & street names
 - e. New electroliers
 - f. TBM shown with reference to an approved City benchmark
 - g. Plan Sheet references
3. Sheet Index
4. Symbol/Abbreviations Legend
5. Location Map with North Arrow
6. Construction quantities/Scope of Work shown and itemized

STREETS

A. PLAN VIEWS

1. Promised items in Project Narrative Questionnaire are shown on plans. _____
2. Handicap ramps are designed per Standard Details. _____
3. Property corner cutoffs used where handicap ramps installed (see
Standard Detail A-1) otherwise concentric with curb. _____
4. Curb curve data given-central angle, length, and radius. _____
5. Phase boundary shown (if applicable). _____
6. R/W and street width dimensions shown. _____
7. Centerline stationing at 100' and at BC & EC of horizontal curves. _____
8. Lot/parcel lines and numbers/letters shown. _____
9. Cul-de-sac cross slopes from high point to gutter lip-.02 min./.05 max. _____
10. Rim and invert elevation and station given at all drainage structures. _____
11. TC elevation and station at property line extensions. _____
12. TC elevation and station at grade breaks and at curb returns. _____
13. 0.0025 minimum slope observed on all streets at curb line with minimum
0.2 foot fall around returns. _____
14. Location of underground pipes and utilities shown. _____
15. Fire hydrant and electrolier meanders per Standard Detail W-9 & E-2. _____
16. Street monuments shown. _____
17. Street names shown. _____
18. All notes and standard symbols conform to legend. _____
19. All ex. utility poles, manholes, valves, signs, mail, boxes, trees, etc.
shown. Indicates those to be removed, relocated or adjusted to grade. _____
20. Continuations and cross streets properly referenced ie.(See sheet #__) _____
21. Street knuckles are per Standard Detail A-22 or approved deviation. _____
22. Street signs, traffic signs and barricades shown in proper locations. _____
23. Driveway locations & stationioning shown. Width 16'-24' (residential). _____
24. Shows existing manholes, water valves and other facilities to be adjusted
to grade. _____
25. North arrow shown for each plan view area. _____

B. PROFILES

1. Vert curves designed for proper speeds per Highway Design Manual. _____
2. Minimum vertical curve lengths observed. (100'). _____
3. Vertical scale 1" = 2' or 1" = 4' _____
4. Vertical curves used for grade-breaks where algebraic difference >1%. _____
5. Cul-de-sacs, show profiles @ centerline through radius point to TC at end of cul-de-sac (dashed line). _____
6. 2% maximum grade observed across intersections. _____
7. All underground pipes and utilities shown to include storm drain, water and sewer. _____
8. Existing ground on centerline shown. _____
11. Finished grade profile for top of curb shown. _____
12. Centerline profiles of intersecting streets shown to their point of intersection. _____
13. New road profile conforms to off-site existing road profile. _____
14. Centerline stations and elevations shown @ all BVC, EVC, PIVC, grade breaks, low points and high points. _____
15. All slopes in profile shown. _____
16. Shows all utility crossings with clearances indicated. _____
17. Manhole and drop inlet invert and flowline elevations shown. _____
18. Elevation at high and low points of water mains shown. _____

GRADING PLANS

1. Erosion control plan included when project is planned for construction between October 15th and May 1st. _____
2. Existing elevations or contours shown. _____
3. Existing and proposed storm drain lines and structures shown. _____
4. Proposed pad grades & lot numbers shown. Minimum grade of lots 1% _____
5. "Lowest Floor" shall be minimum 1' above calculated high water point or FIRM base flood elevation, whichever is greater. See Section 4.500 of the Design Standards for further details. _____
6. Retaining walls and sound walls shown. _____

7. Section of typical lot shows property lines and slopes/grades.
8. Elevations at rear of lots shown.
9. Elevation of surrounding lots shown.
10. Shows grading required for off-site drainage.
11. Profile shows back-of-curb/sidewalk and original ground.
12. Grading conforms to adjacent properties and does not create possible adverse effects on future development.
13. Drainage does not occur across lot lines. Lots shall drain to streets where practicable.
14. All slopes are maximum 2:1 or per Soils Report.

SANITARY SEWERS

1. System in agreement with approved tentative map and master plan.
2. Design conforms to City Design Standards and Details.
4. Adequate cover. 3' min to finished grade -2' min for ductile iron.
5. Minimum horizontal and vertical clearances from water main.
6. Pipe size, type, slope, and length between structures shown.
7. Connection to existing facilities shown. Manhole installed when tying to existing lines.
8. Where sewer line extension is possible, do proposed lines extend to at least the subdivision boundary?
9. Are curved sewer deflections less than 80% of pipe manufacturer's recommended maximum? Shows curve data or offsets if concentric with centerline. Short pipe lengths are indicated clearly on plans.
10. Station and invert & top of manhole elevations shown.
11. Sizes of existing lines shown.
13. 400' maximum distance from manhole to manhole and 250' from manhole to clean out (at end of line).
17. Minimum 2 fps velocity, 10 fps maximum.
18. 0.1' drop around corner through manhole, or matches soffit elevation.
19. Bolted manhole covers for any off street manholes.
20. In unimproved areas, manholes extended 1' above ground.

21. Elevations, slopes and distances all mathematically correct.
22. Minimum vertical and horizontal distances to water lines maintained.

DRAINAGE

A. HYDROLOGY-HYDRAULICS

1. Calculations conform to City Design Standards. Underground system designed to handle a 10-year storm, streets designed to carry a 100 year storm.
2. Tributary drainage system designed to connect to City's future storm drainage system and conforms to Storm Drainage Master Plan.
3. Calculations shall include: HGL, FL El, Q, A, S, V, freeboard at structures, structure losses, & tailwater assumptions.
4. Adequacy of in-tract and off-tract drainage system verified.
5. All starting water surface calculations adequately verified.
6. Drainage map showing street system, existing and proposed drainage system, slope arrows, tributary sub-areas in acres, peak flow in all pipes (1" = 100' preferred)
7. All pipe in tributary areas labeled to correspond with calculations.
8. Base Flood Elevation verified for the project area.

B. EASEMENTS

1. Off-tract drainage improvements (plan and profile) and accompanying easements shown. Off-tract offers of dedication for drainage easement submitted for review.
2. Off-tract work to be done but no easement required; right-of-entry submitted for review.
3. Easement widths indicated.

C. STRUCTURES

1. 1.00' minimum HGL to TC.
2. Special structure calculations provided.

D. PIPE

1. Minimum slope of 0.002 observed (min. 2 fps). Size (15" min.), class, slope, length, and, type of pipe (RCP) shown in profiles.

2. Indicates clearly on plans where non-standard pipes are used. _____
3. Are curved storm line deflections less than 80% of pipe manufacturer's recommended maximum? Shows curve data or offsets if concentric with centerline. _____
4. Elevations, slopes and distances all mathematically correct. _____
5. Matches hydraulic/hydrology calculations. _____
6. Manhole inverts and rim elevations shown along with catch basin invert elevations. _____

E. CHANNELS

1. Maximum velocity in earth channel verified by soils report. _____
2. Channel side slopes as specified by soils report. _____
3. Channel design per City Specific Plan (if applicable) _____

F. TEMPORARY STORM DRAIN RETENTION BASINS

1. Runoff and volume calculations per City Design Guidelines. _____
2. High water level shown on basin section. _____
3. Basin bottom 5' above water table unless statement from soils engineer indicates range of depths, then 2' minimum allowed. _____
4. Outfall protection using rip-rap required. _____
5. Chain link fence with slats required around basins >3 feet in depth. _____
6. Pedestrian access ramps (if any) meets ADA requirements. _____
7. Off-tract basins have an access road around the basin. _____
8. Easement boundary shown. _____
9. Maximum sloped ratios for turfed or landscaped side slopes = 4:1 _____

G. GENERAL

1. Shows winterization procedures and erosion control measures. _____
2. Copy of permit provided (if applicable) necessary for outfall. _____

WATER

1. Design conforms to City of Morgan Hill Design Standards and Standard Details for Construction. _____
2. Design conforms to Water Master plan. _____
3. Minimum distances to sanitary sewer and storm lines maintained. _____

4. Length shown as distance between crosses or tees.
5. Air relief valves at high points.
6. Invert elevations shown at all grade breaks and air relief valves.
7. Sizes of all existing lines shown.
8. Fire services shown. (if applicable)
9. Size and type of pipe shown in profile.
10. Blowoffs at dead-end lines.
11. Valves on all legs of a "cross" or "tee".
12. Minimum cover 36 inches.
13. Minimum water service size 1 inch.
14. Size and location of water services laterals and meter boxes shown.
15. Fire Hydrant spacing per Design Standards section 4.600.
16. Valves spaced per Design Standards section 4.700.

CITY OF MORGAN HILL
Department of Public Works

CONSTRUCTION DETAILS

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GENERAL SECTION

CONSTRUCTION WITHIN CITY RIGHT-OF-WAY

No person or contractor shall do or cause to be done any improvement or encroachment work of any kind in any public right-of-way within the City without first having obtained an encroachment permit from the Public Works Department.

Developers shall arrange for a pre-construction meeting with the City Engineer (Municipal Code 17.32.250b) prior to commencing any construction. An encroachment permit shall be obtained from the Public Works Department upon completion of said meeting and prior to construction of any improvements within an existing or offered for dedication right-of-way, public utility easement or public service easement.

Contractor shall notify the Public Works Department 48 hours prior to commencement of any work phase. At that time an "Inspection Request Form" shall be completed to ensure proper scheduling of an inspection with the City Engineer's Representative.

Contractor shall not destroy existing permanent survey monuments; whether property corners or street centerline monuments.

All work shall conform to the latest edition of the City of Morgan Hill Standard Details for Construction. Deviations from the Standard Details must be approved by the City Engineer.

Contractor shall only use equipment provided with a spark arrestor device to reduce a potential fire hazard.

ON-SITE CONSTRUCTION

A grading permit shall be obtained from the City of Morgan Hill Building Division prior to any grading of building pads. Applicant for the grading permit shall provide a plan review letter from the Soils Engineer. A grading permit does not give contractor permission to commence off-site (street) grading. Only upon City approval of the improvement plans and completion of a pre-construction meeting, shall contractor commence off-site grading.

Contractor shall preserve all surrounding property by confining operations to within the "Limits of Work". Contractor shall be responsible for maintaining access for all adjoining residents, places of business, and properties at all times and in a safe manner. Contractor shall make proper notification at least 24 hours in advance of any interruption in access or service to the above property owners as well as to the City Engineer's Representative.

RIGHT OF MODIFICATION

Approval of an improvement plan does not release owner/subdivider of the responsibility for correction of mistakes, errors, or omissions, contained within the plans. If during the course of construction, public interest requires a modification of or a departure from the improvement plans or these Standard Details for Construction, the City Engineer shall have the authority to require such modifications and departures and to specify the manner in which the same is to be made.



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OFF-SITE WATER & DUST CONTROL

Contractor shall provide a water truck onsite at all times. Contractor will be allowed to draw water from the City of Morgan Hill Water Distribution System only after obtaining a hydrant meter from the Public Works Department and an inspection of the water truck for a proper backflow device or "air-gap" filling pipe. Developer has paid for "off-site" construction water which shall not be used for building construction. Contractor shall keep down dust from construction activity to the maximum extent possible. Contractor shall clean all existing streets, curbs, gutters, and sidewalks affected by the project at the end of each working day.

MATERIAL STORAGE

No material shall be stored near the edge of pavement, traveled way, sidewalk, driveway, or shoulder line which may create a hazard for vehicular and pedestrian traffic.

TRAFFIC CONTROL

Contractor shall submit a traffic control plan for approval to the Public Works Department a minimum of 5 days prior to any work within an existing public street. The plan shall be signed by a licensed Traffic Engineer when it involves an arterial street. Contractor shall provide all necessary traffic control in accordance with the latest edition of CALTRANS "Manual of Warning Signs, Lights, and Devices for Use in Performance of Work Upon Highways" while working within the public right-of-way. Two traffic lanes (10' min.), shall be open to vehicular traffic during all hours, weekends, and holidays. One lane one way traffic, may be permitted under the control of not less than 2 (two) competent flagmen during construction operations. Street closures and detours shall only take place upon City Engineer approval and Police Department coordination.



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LEGEND

PROPOSED	EXISTING	REMOVE, SALVAGE OR RELOCATE	DESCRIPTION
			PROPERTY LINE
			CENTER LINE
			LIMIT OF WORK LINE
			CITY LIMIT LINE
			EDGE OF PAVEMENT
			CURB AND GUTTER
			SIDEWALK
			DRIVEWAY APPROACH
			PAVING CONFORM
			HANDICAP RAMP
			STREET NAME SIGN
			STREET SIGN (W/ABBR. SYMBOL)
			GUARD RAIL
			STREET BARRICADE
			RAILROAD TRACKS
			FENCE (TYPE)
			TOP OF SLOPE
			SLOPE / FLOW LINE DIRECTIONAL ARROW
			BENCH MARK
			STREET MONUMENT
			KEY TO REVISIONS
			DUPLICATE ITEM (INDICATE W/SYMBOL)
			AS-BUILT CHANGES
			JOINT POWER POLE



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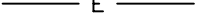

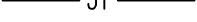

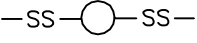








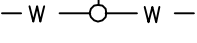
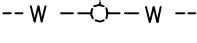
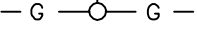




















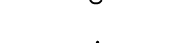

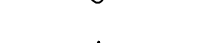









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LEGEND

PROPOSED	EXISTING	REMOVE, SALVAGE OR RELOCATE	DESCRIPTION
 SS	 SS		SANITARY SEWER
 SD	 SD		STORM DRAIN
 W	 W		WATER MAIN
	 G		GAS
	 E		ELECTRIC
	 T		TELEPHONE
	 JT		JOINT TRENCH
 SS	 SS		SEWER MANHOLE
 SD	 SD		STORM MANHOLE
			FIRE HYDRANT
 W	 W	 W	WATER VALVE
	 G		GAS VALVE
 B.O.	 B.O.	 B.O.	BLOW OFF
 C.O.	 C.O.	 C.O.	CLEAN OUT
 A.R.V.	 A.R.V.	 A.R.V.	AIR RELIEF VALVE
			WATER SERVICE (WITH METER)
 S	 S	 S	SEWER LATERAL
 W	 W		BACKFLOW DEVICE
 e	 e	 e	ELECTROLIER
 e	 e	 e	ELECTRICAL SECONDARY (ST. LIGHT SERVICE)
			CURB INLET
			GALLERY INLETS (TYPE AS NOTED)
			DROP INLET



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STREET SECTION

GENERAL

All work shall be in accordance with the latest edition of Standard Specifications, State of California, Department of Transportation, Caltrans (CSS) and the American Society for Testing and Materials (ASTM), except as modified herein.

SUBGRADE

(a) Preparation. Special care shall be taken by the contractor to achieve an evenly compacted subgrade. The relative compaction shall be 95%, as determined by CSS TM-231, for at least the top 8" of subgrade. In areas of fill, a minimum of 24" from finished grade shall be compacted to 95% relative compaction. Moisture-Density curve determinations shall conform to ASTM D1557.

PAVEMENT

(a) Asphalt Concrete Pavement Asphalt concrete pavement shall contain the number of lifts specified. In the case of two lifts, the first shall be the base course, Type B, 3/4 inch maximum aggregate size, and the second lift shall be the surface course, Type B, 1/2 inch maximum aggregate size, as specified in CSS Section 39. The relative compaction of each asphalt concrete lift shall be 95%, unless approved otherwise by the City Engineer.

(b) Aggregate Base. Aggregate base shall be 3/4" max. Class 2 aggregate base as specified in CSS Section 26.

(c) Aggregate Sub-base. Aggregate sub-base shall be 1 1/2" max. Class 2 aggregate base, as specified in CSS Section 26.

(d) Contaminated Base. Any aggregate base that becomes contaminated during construction shall be removed and replaced with uncontaminated Class 2 Aggregate Base.

(e) Lime Stabilized Subgrade. Lime stabilized subgrade shall only be used upon approval of the City Engineer and shall be constructed in accordance with CSS Section 24. An increase in the lime content must be approved by the City Engineer.

(f) Proportioning, Mixing, Spreading, and Compacting. The proportioning, mixing, spreading and compacting of asphalt concrete to make up asphalt pavement, shall be in accordance with CSS Section 39.

(g) Priming. Untreated aggregate base shall be primed with MC-70, in accordance with CSS Section 39-4.02.

(h) Tacking. Any vertical edge adjoining new pavement courses shall be tacked with SS-1 prior to placement of pavement course, in accordance with CSS Section 39-4.02.

(i) Fog Sealing. The asphalt surface shall be fog sealed with SS-1 when specified and conform to CSS Section 37.



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(j) Joining Existing Pavement. Existing pavement which is to be joined by new pavement, shall be saw cut vertical to provide straight, true, and neat joints. Overlapping of existing pavement without saw cutting or grinding shall not be permitted. The vertical edges shall be tacked prior to paving as specified previously. Terminals of all surfacing indicated on the plans shall join any existing surface in a smooth butt joint. Conform paving by method of abrasive grinding will be allowed upon approval of the City Engineer.

(k) Patch Repairs. Where repairs to new or existing asphalt concrete are required, the AC shall be totally removed, edges saw cut and tacked, base primed, and replaced with new hot mix AC. If cold mix is used as a temporary patch, the contractor shall be responsible for maintenance of the cold mix at all times. Contractor shall remove all cold mix prior to finish paving and henceforth become property of the Contractor.

(l) Removal and Disposal of Pavement. Where pavement is shown to be removed on the plans, it shall mean that all asphalt concrete and aggregate base be removed. Waste or surplus asphalt mix, old pavement and sub-base debris shall be removed from the site.

CONCRETE

(a) Cement. All cement shall conform to the specifications and tests for Portland Cement, ASTM Specifications C-150, and shall be Type 2.

(b) Fine aggregate. Fine aggregate shall be clean, natural sand or sand prepared from stone or gravel and shall conform to the requirements of ASTM C-33, and CSS Section 90-2.02B.

(c) Coarse Aggregate. Coarse aggregate shall consist of material conforming to the requirements of ASTM C-33, and shall be in accordance with CSS Section 90-2.02A.

(d) Water. Water used in making concrete shall be clean, free from oil, alkali, acid, organic matter, or other deleterious substances. Water shall be in accordance with CSS Section 90-2.03.

(e) Admixtures. No admixtures will be allowed except as approved by the City Engineer on a job to job basis. Such usage may only be for the purpose of increasing plasticity. No decrease in cement content shall be permitted as a result of the use of such admixtures. No other admixtures shall be added to the concrete mix. The use of admixtures, if approved by the City Engineer, shall be in accordance with CSS Section(s) 90-4.03 and 90-4.04.

(f) Workmanship and Methods. Unless specifically covered elsewhere in these details, all concrete work, including detailing of reinforcing, shall be equal to the best general practice and as set forth in the ACI Building Code, Manuals and Recommended Practices.

(g) Classes of Concrete. Concrete shall consist of two classes, herein referred to as Class A and Class B, as specified in CSS Section 90. Class A concrete shall be used in all retaining walls, box culverts, and wherever specified in the plans and specifications. At a minimum, Class B concrete shall be used for driveway approaches, sidewalks, curb and gutters, thrust blocks, and miscellaneous construction items such as pipe encasements.



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(h) Pneumatically Placed Mortar. Materials used in Gunite, Shotcrete, Mortar, etc., applied directly to a surface by air jet, shall be in accordance with CSS Section 53 and Section 90, irrespective of manufacture of the mixing and placing apparatus.

(i) Proportioning and Mixing. All proportioning and mixing methods, devices, and transporting, shall be in accordance with CSS Section(s) 90-5 and 90-6.

(j) Workability. Concrete shall be of such consistency that it can be worked readily into the corners and angles of the forms and around the reinforcement without excessive spading and does not permit material segregation or bleeding of water.

(k) Field Tests. During the progress of construction, the Inspector has the authority to order tests to determine whether the concrete, as being produced, complies with the standards of quality specified. These tests shall be made in accordance with ASTM C 31 and ASTM C 39. For all concrete, the standard age for the test shall be 7 days. Slump tests shall be in accordance with ASTM C 143.

EMERGENCY ACCESS SURFACING

Contractor shall be responsible for providing an "All Weather Surface" to any existing structure and/or structures under construction within the project area. For structures under construction, the required surface shall be in place prior to the commencement of any wood framing.

The required "All Weather Surface" shall consist of 6" min. thickness, Class 2 Aggregate Baserock, compacted to a relative compaction of 95%. The contractor shall be responsible for removal of any contaminated baserock prior to finish grading.

The Building Division will issue a "Foundation Only" permit and shall not issue a permit for wood framing unless the following requirements are met:

1. All new water mains are charged, pressure tested, bacteria tested and approved by the Department of Public Works. All fire hydrants within 500' of new construction are charged and operational.
2. All sub-grade is compacted to a relative compaction of 95%, tested and approved by the Department of Public Works.
3. Central Fire District has approved the proposed surface location and has visited the site after construction of the surface, but prior to issuance of Building permits for wood framing.



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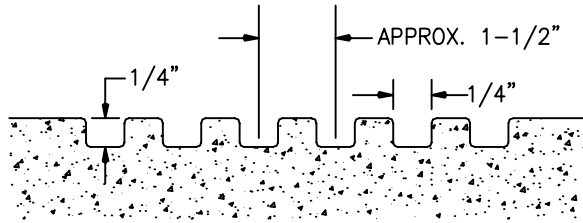
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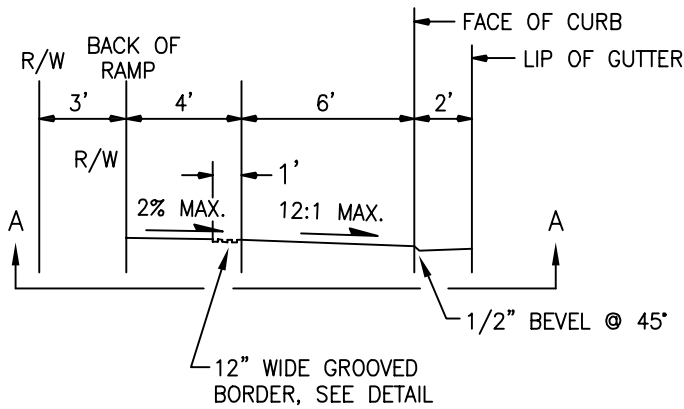
A-III

* TYPICAL HANDICAP RAMP (8:1) FLARE WIDTHS

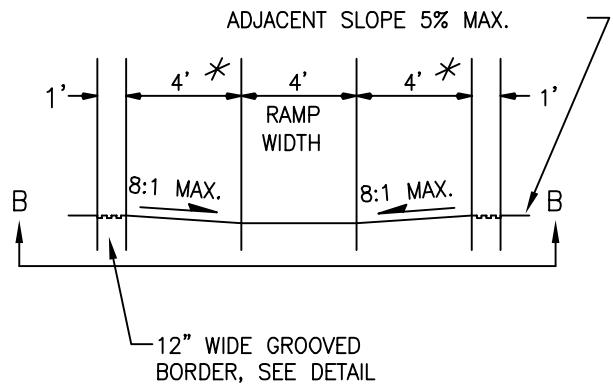


GROOVING DETAIL

GUTTER GRADE (%)	FLARE WIDTH (FT.)
0.5	4.0 (MIN.)
1.0	4.4
1.5	4.6
2.0	4.9
2.5	5.2
3.0	5.5
3.5	5.9
4.0	6.3
4.5	6.9
5.0	7.5

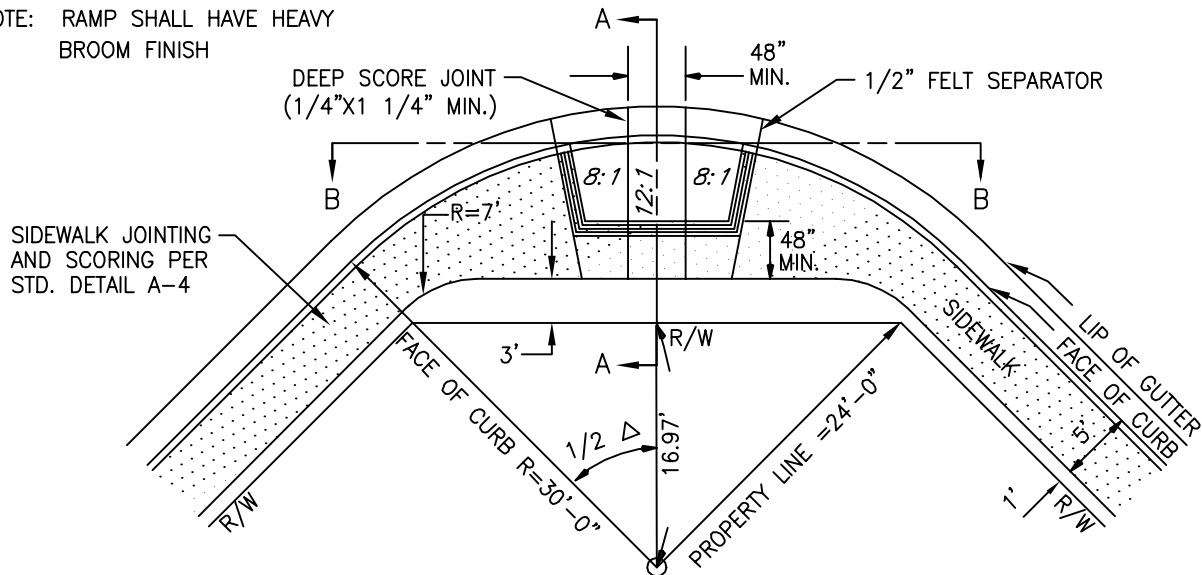


SECTION A - A



SECTION B - B

NOTE: RAMP SHALL HAVE HEAVY BROOM FINISH



NOTE: CURRENT A.D.A. (AMERICANS WITH DISABILITIES ACT) REQUIREMENTS SHALL GOVERN OVER THIS DRAWING.



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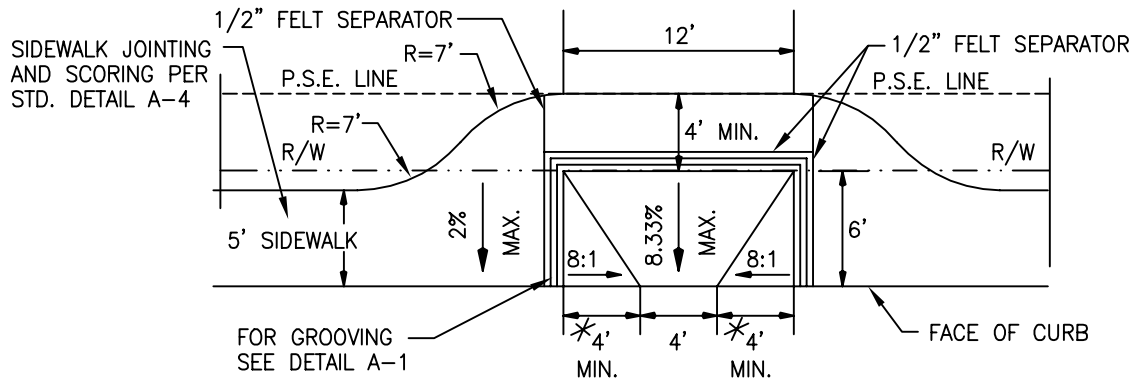
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HANDICAP RAMP RESIDENTIAL SIDEWALK

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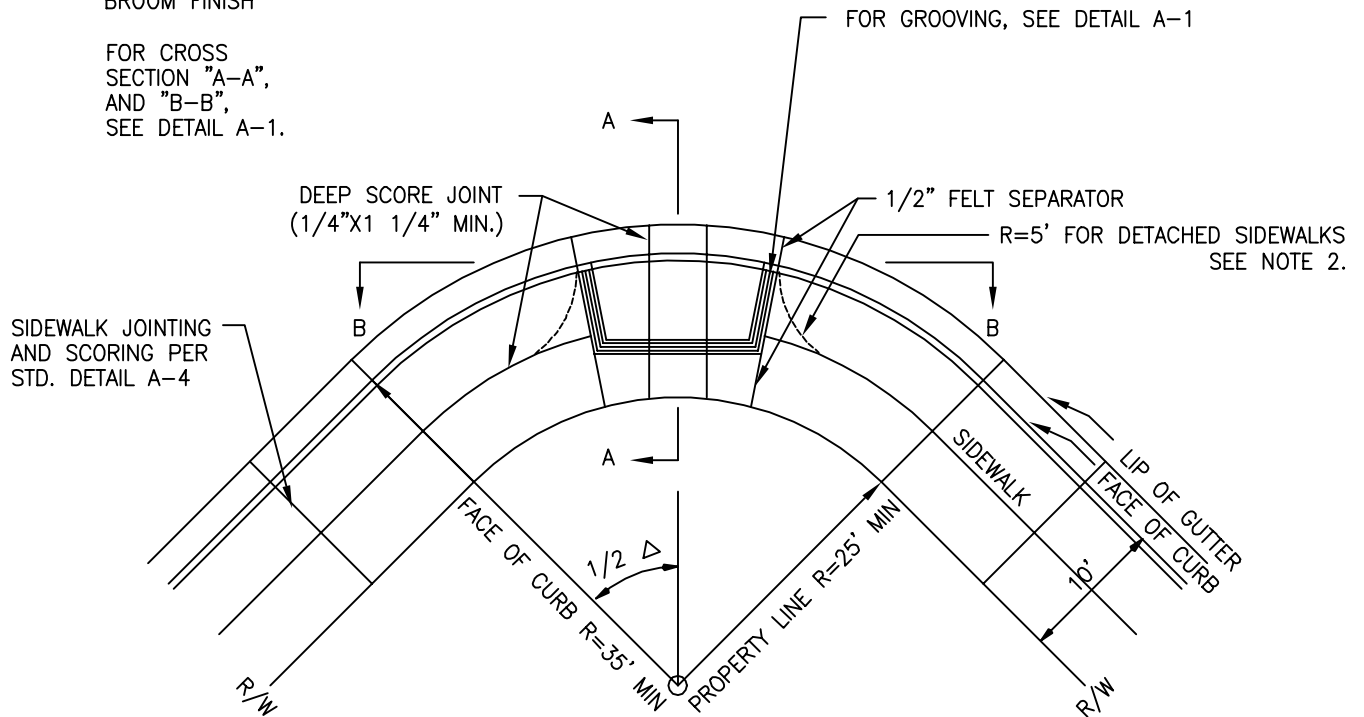
A-1



"CASE D" HANDICAP RESIDENTIAL RAMP
 *= SEE FLARE WIDTH TABLE, DETAIL A-1

NOTE: RAMP SHALL HAVE HEAVY
 BROOM FINISH

FOR CROSS
 SECTION "A-A",
 AND "B-B",
 SEE DETAIL A-1.



NOTE:

1. CURRENT A.D.A. (AMERICANS WITH DISABILITIES ACT) SHALL GOVERN OVER THIS DRAWING.
2. FOR 5' ATTACHED SIDEWALK, SEE DETAIL A-1 FOR HANDICAP RAMP AND SIDEWALK CONFIGURATION.



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 Public Works Department

Jim Oakcraft
 CITY ENGINEER

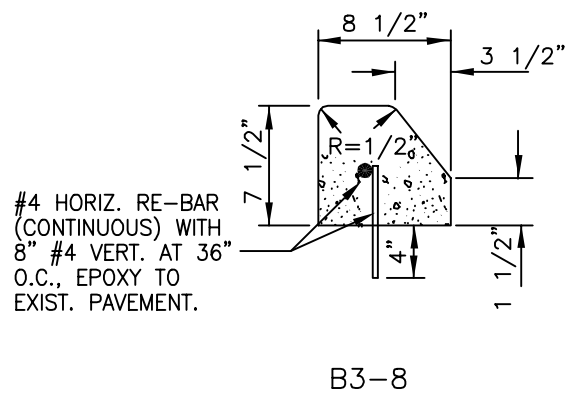
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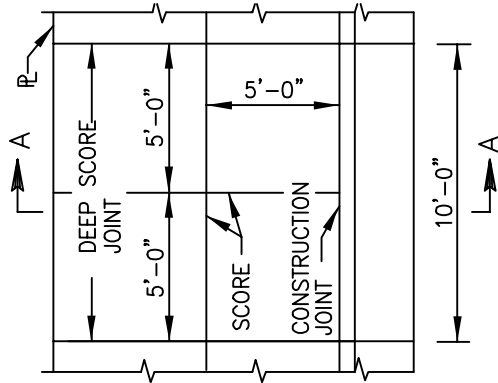
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HANDICAP RAMP COMMERCIAL SIDEWALK

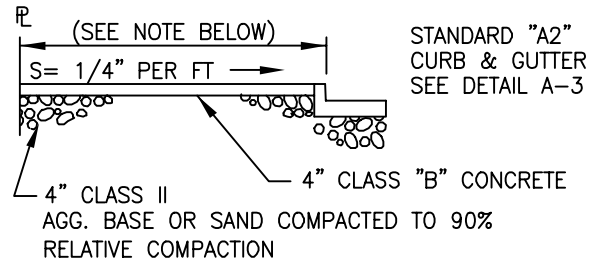
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A-2



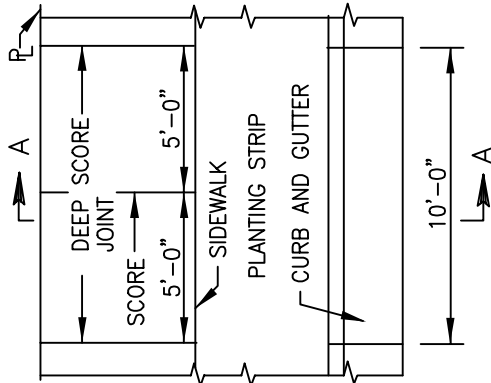


COMMERCIAL

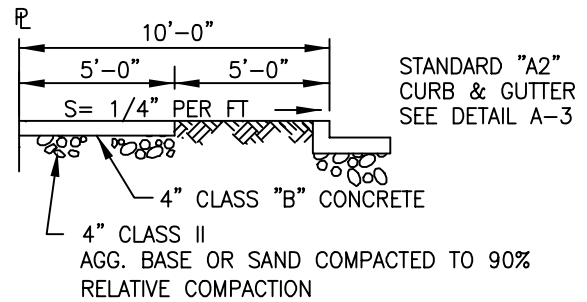


SECTION A-A

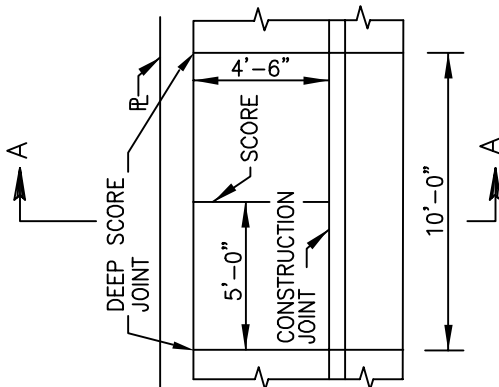
NOTE: 10' COMMERCIAL SIDEWALK IN DOWNTOWN CORE. FOR 5' SIDEWALK, SEE RESIDENTIAL ATTACHED OR DETACHED, DEPENDING UPON PLANNING DEPARTMENT REQUIREMENTS.



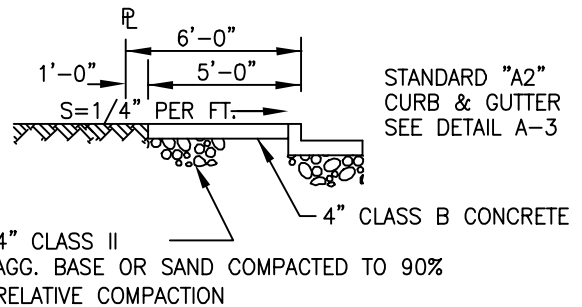
RESIDENTIAL (DETACHED)



SECTION A-A



RESIDENTIAL (ATTACHED)



SECTION A-A

- NOTES:
1. CONSTRUCT 3/8" EXPANSION JOINTS WITH FELT FILLER AT RETURNS AND MAJOR STRUCTURES.
 2. ROUND ALL EXPOSED EDGES TO 1/2" RADIUS.
 3. PLACE EXPANSION JOINTS EVERY 60' (1/2" FELT SEPARATOR).
 4. PLACE DEEP SCORE JOINTS EVERY 10'. (1/4" X 1 1/4" MIN)
 5. PLACE SCORE MARKS EVERY 5' IN SIDEWALK SECTIONS ONLY. (1/8" X 1/2" MIN.)
 6. PLACE AN "S" FOR SEWER LATERAL AND A "W" FOR WATER SERVICE ON FACE OF CURB (NEW DEVELOPMENTS ONLY).



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Public Works Department

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CITY ENGINEER

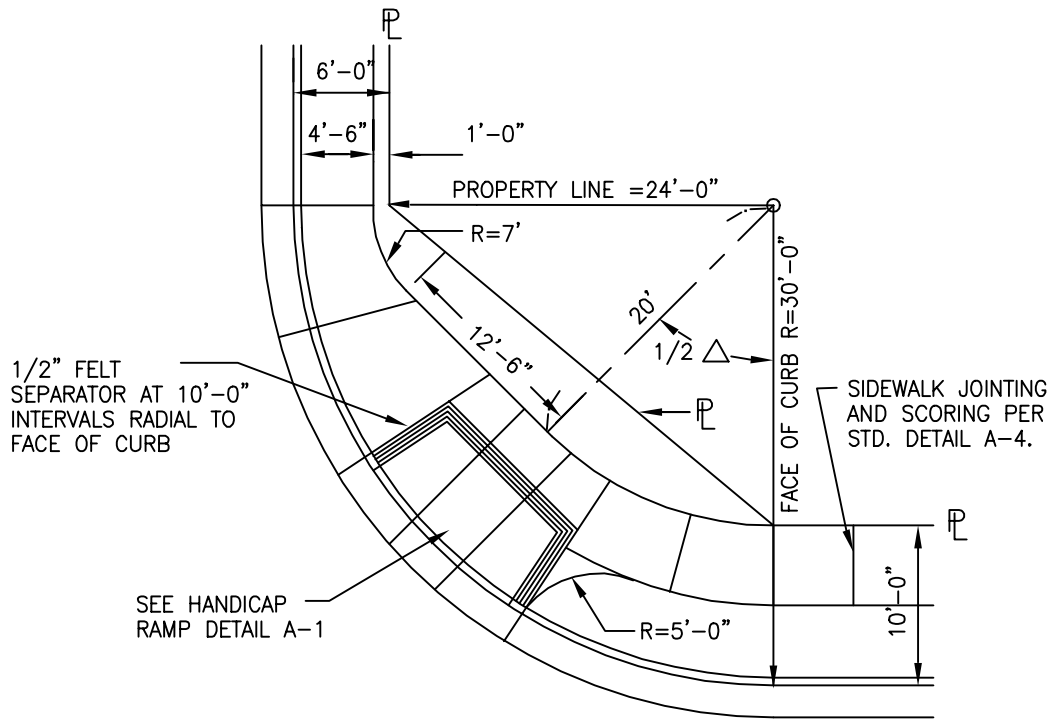
DATE

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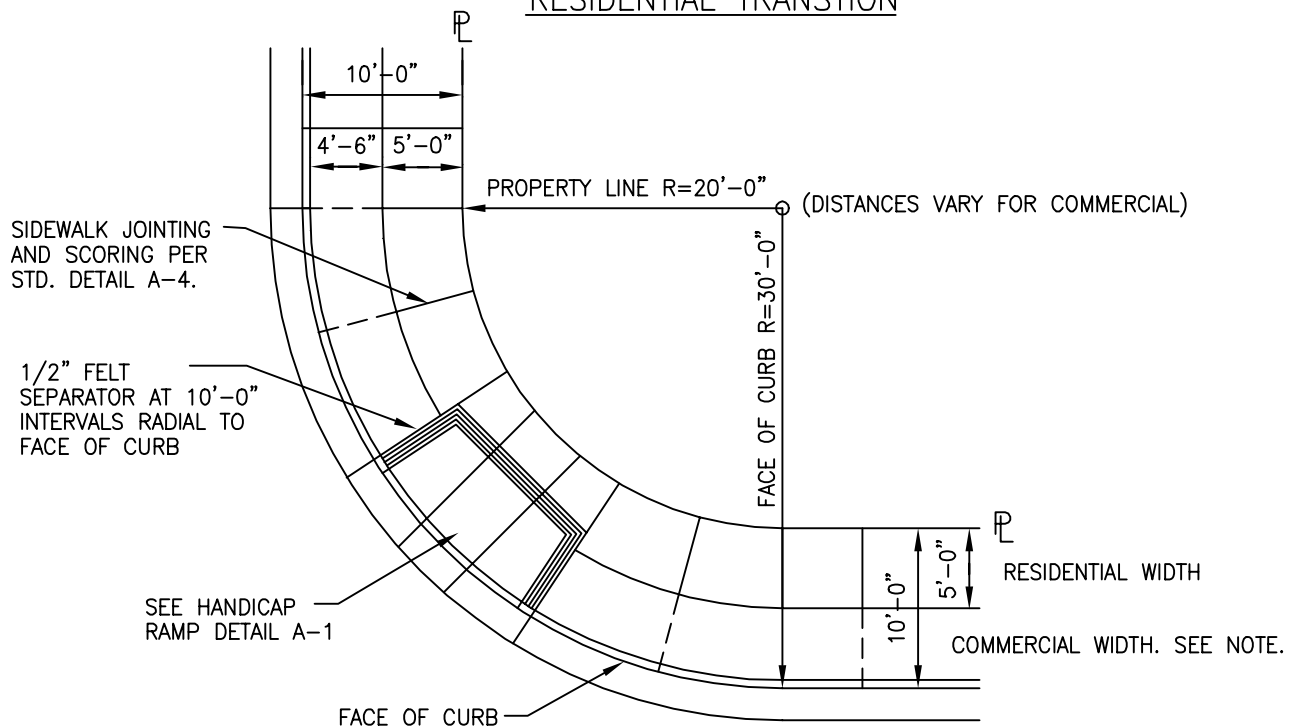
SIDEWALK COMMERCIAL,
DETACHED RESIDENTIAL,
AND ATTACHED RESIDENTIAL

DRAWING
NO.

A-4



RESIDENTIAL TRANSITION



RESIDENTIAL DETACHED OR COMMERCIAL

NOTE: 10' COMMERCIAL SIDEWALK IN DOWNTOWN CORE. SEE DETAIL A-1 OR A-2 FOR 5' SIDEWALK, DEPENDING UPON PLANNING DEPARTMENT REQUIREMENTS.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

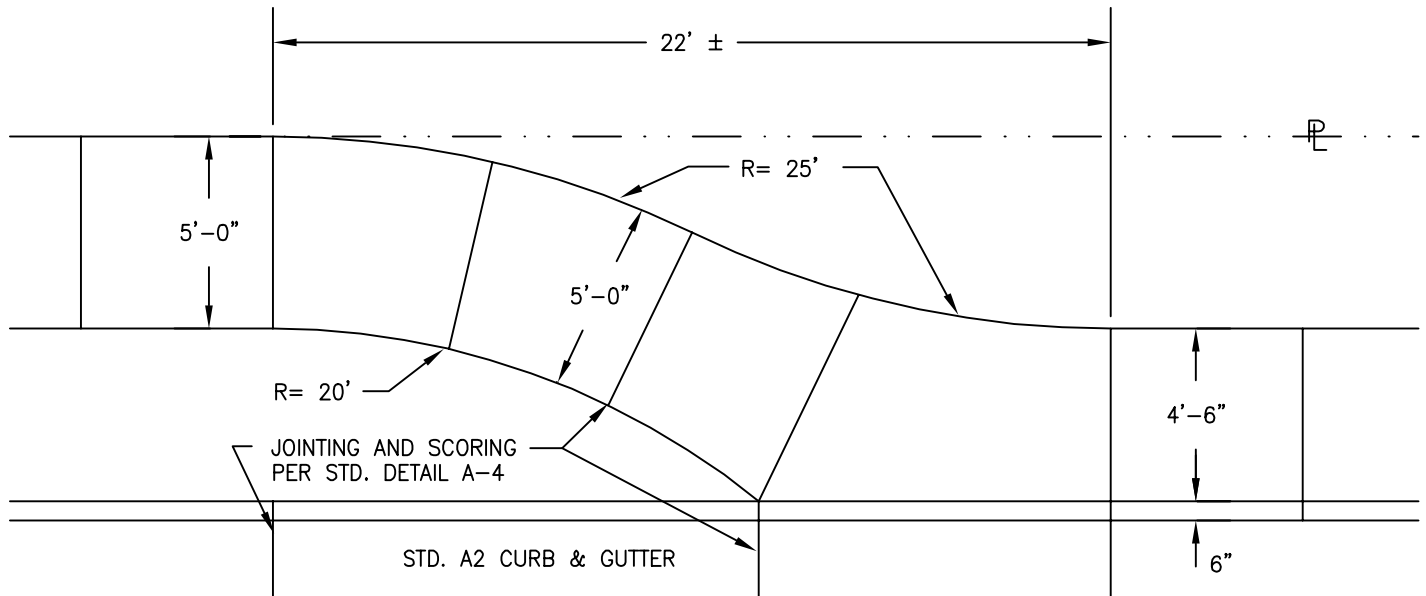
4/1/96
DATE

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STANDARD RETURNS DETACHED AND TRANSITION SIDEWALKS

DRAWING
NO.

A-5



NOTE: 1. SHORTER TRANSITION MAY BE USED UPON CITY ENGINEER APPROVAL



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Public Works Department

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CITY ENGINEER

4/1/96
DATE

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RESIDENTIAL SIDEWALK TRANSITION

DRAWING
NO.

A-6

INSTALL 12"-#4 RE-BAR DOWLING,
6" IN NEW / 6" IN EXIST. AS SHOWN

EXISTING SIDEWALK

PLANTING AREA

CURB

B

REPLACE DRIVEWAY WITH SUITABLE FILL

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

3'-*

REMOVE DRIVEWAY & REPLACE WITH
STANDARD A2 CURB & GUTTER
SEE DETAIL A-3

REMOVE DRIVEWAY & REPLACE WITH
STANDARD A2 CURB & GUTTER
SEE DETAIL A-3

* REMOVE AT EXIST. FELT SEPARATOR OR SAW CUT AT NEAREST JOINT

PLAN

ATTACHED SIDEWALK

PLAN

DETACHED SIDEWALK

CONSTRUCT STANDARD
CONCRETE CURB, GUTTER,
AND SIDEWALK.

REMOVE EXIST. DRIVEWAY
APPROACH BACKFILL WITH
CLASS II AGG. BASE TO 95%
COMPACTION

CONSTRUCT STANDARD
A2 CURB AND GUTTER
CLASS "B" PCC

SAW CUT AT
EXISTING JOINT

EXISTING SIDEWALK

REMOVE EXIST. DRIVEWAY
APPROACH. BACKFILL WITH
SUITABLE MATERIAL.

12"

4"

SECTION A-A

SECTION B-B



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Public Works Department

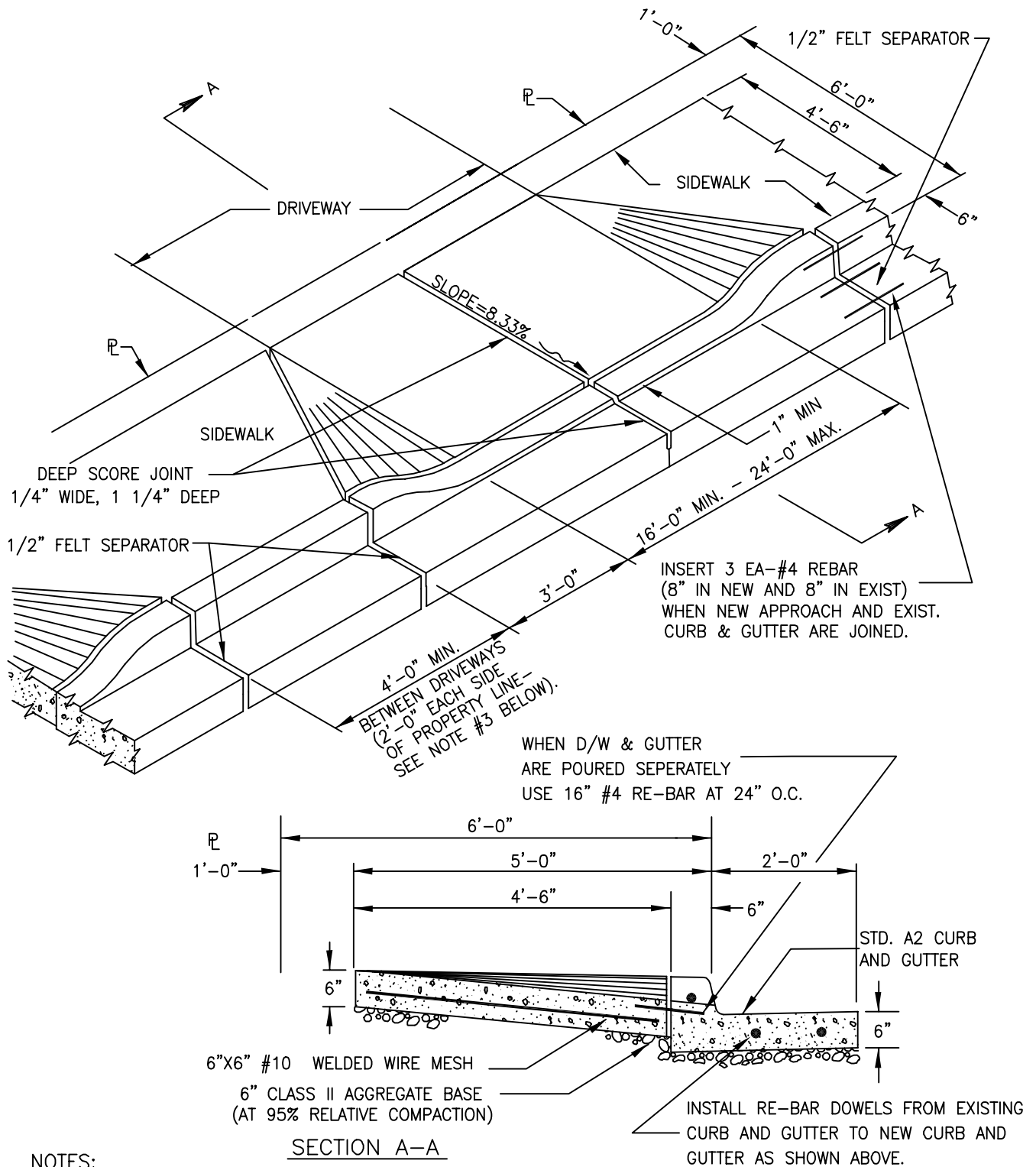
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4/1/96
DATE

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PLUG FOR ABANDONED DRIVEWAY

DRAWING
NO.
A-7



NOTES:

1. DRIVEWAYS EXCEEDING 24' IN WIDTH(EXCLUDING TAPERS), SHALL REQUIRE APPROVAL OF THE CITY ENGINEER.
2. DRIVEWAYS SHALL BE CONSTRUCTED A MINIMUM OF 5' FROM ANY FIRE HYDRANT OR ELECTROLIER.
3. MINIMUM DISTANCE SHALL BE AS SHOWN. DISTANCE MAY BE REDUCED FOR CUL-DE-SAC APPLICATIONS AND DUPLEX APPLICATIONS (REQUIRES CITY ENGINEER APPROVAL).



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Public Works Department

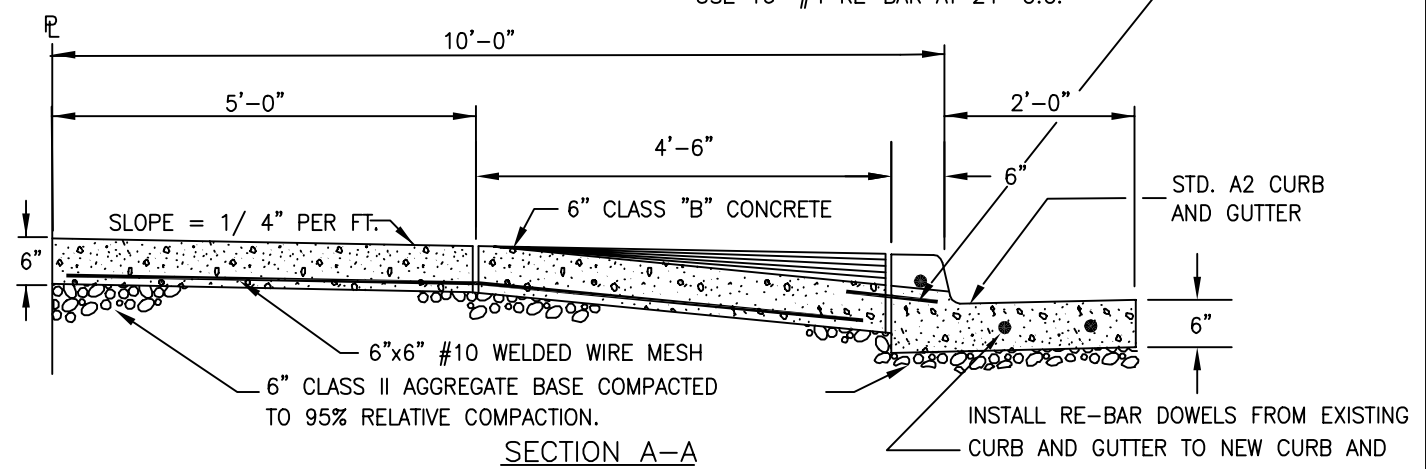
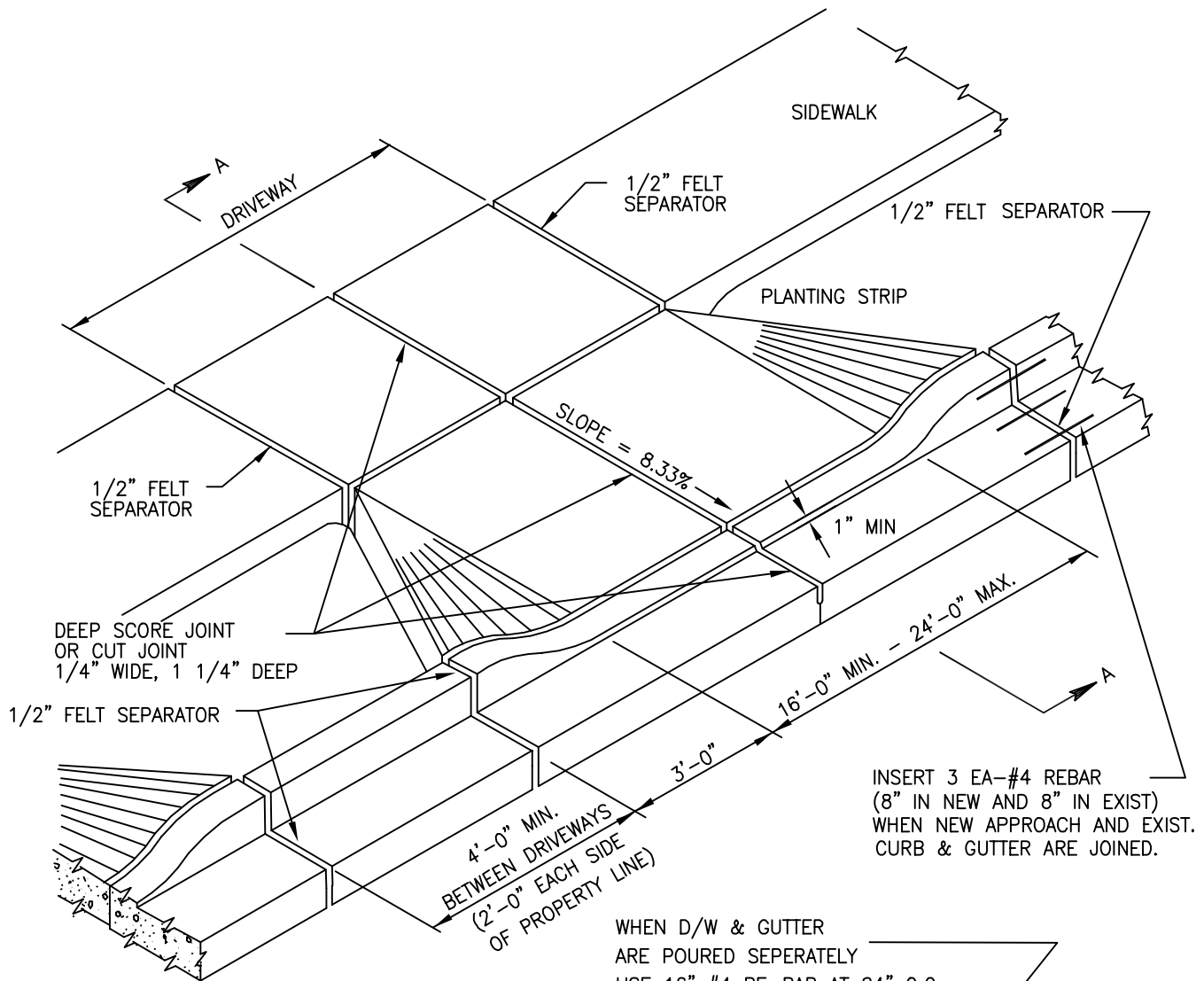
Jim Oakcraft
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4/1/96
DATE

8/6/98
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**NEW RESIDENTIAL DRIVEWAY
APPROACH
ATTACHED SIDEWALK**

DRAWING
NO.
A-8



- NOTES: 1. DRIVEWAY APPROACHES EXCEEDING 24' IN WIDTH (EXCLUDING TAPERS), REQUIRE CITY ENGINEER APPROVAL
 2. DRIVEWAYS SHALL BE CONSTRUCTED A MIN. OF 5' FROM ANY FIRE HYDRANT OR ELECTROLIER.



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Public Works Department

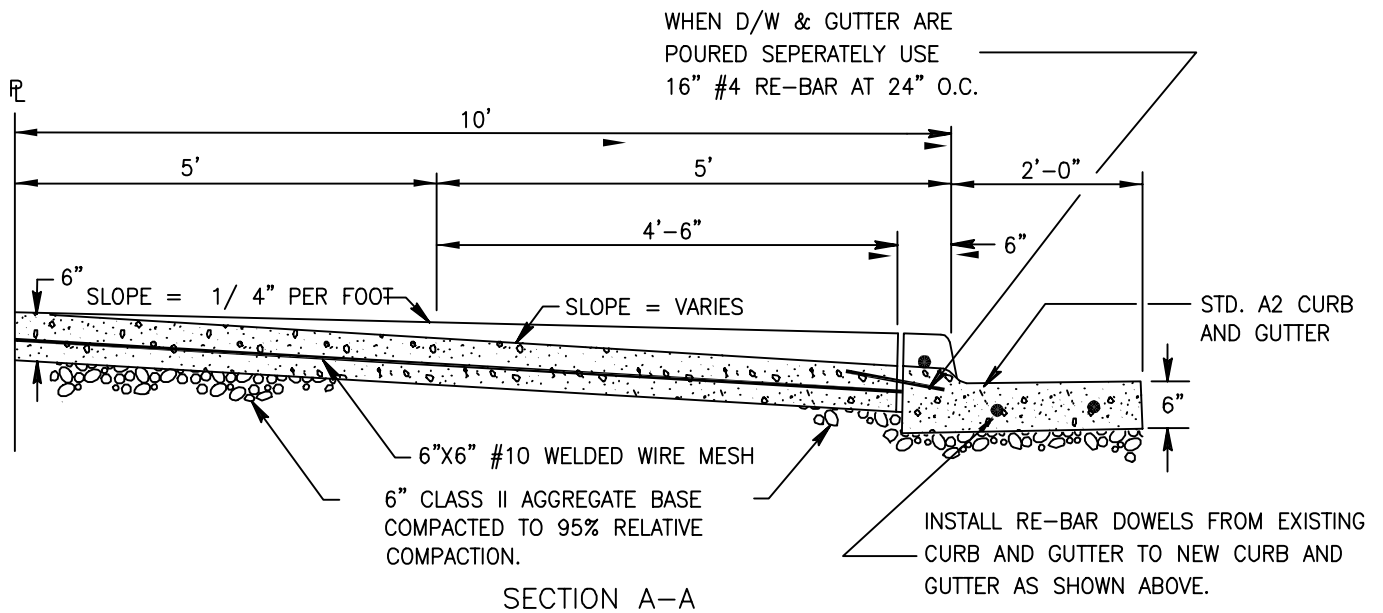
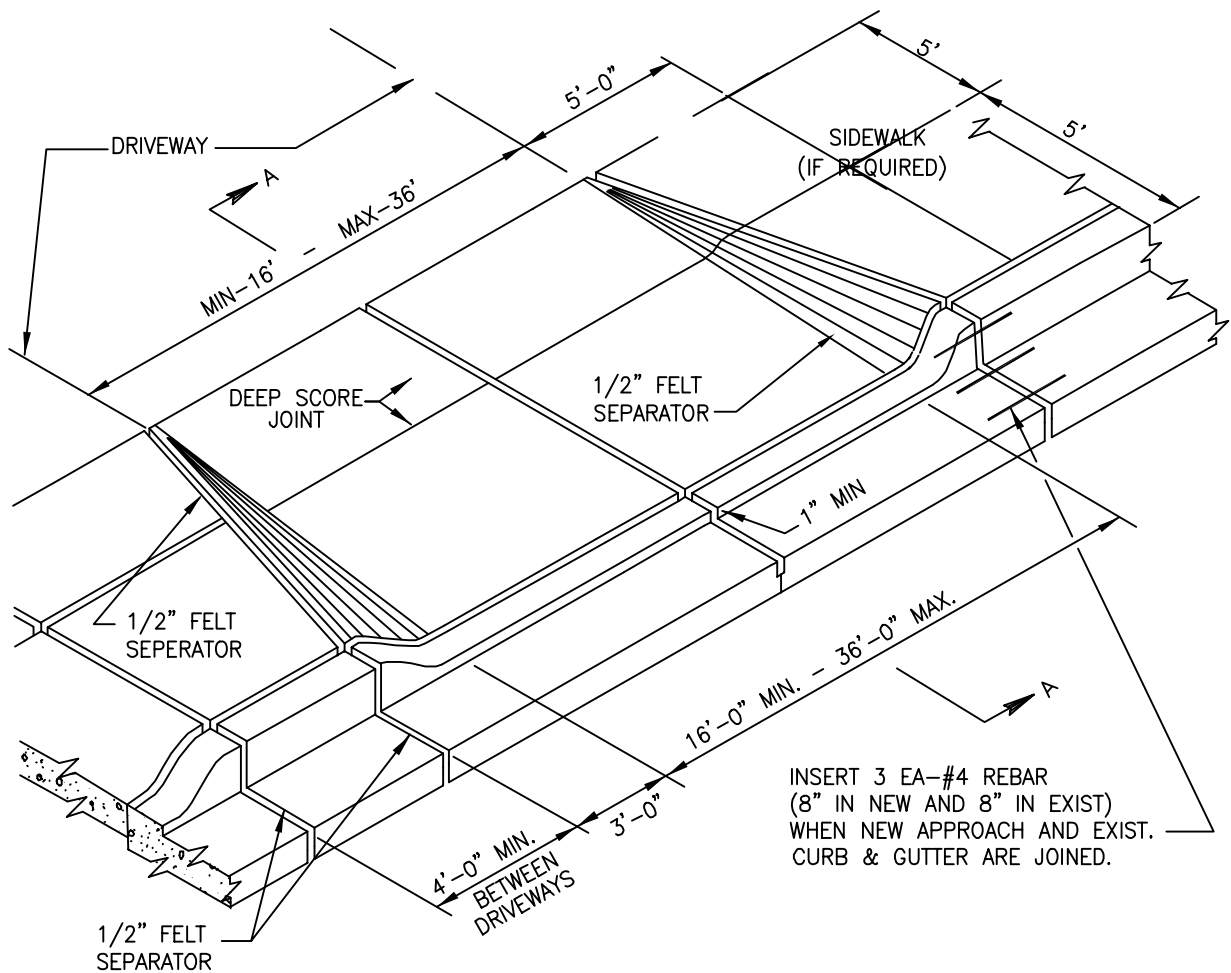
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4/1/96
DATE

8/6/98
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NEW RESIDENTIAL DRIVEWAY APPROACH DETACHED SIDEWALK

DRAWING
NO.
A-9



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Public Works Department

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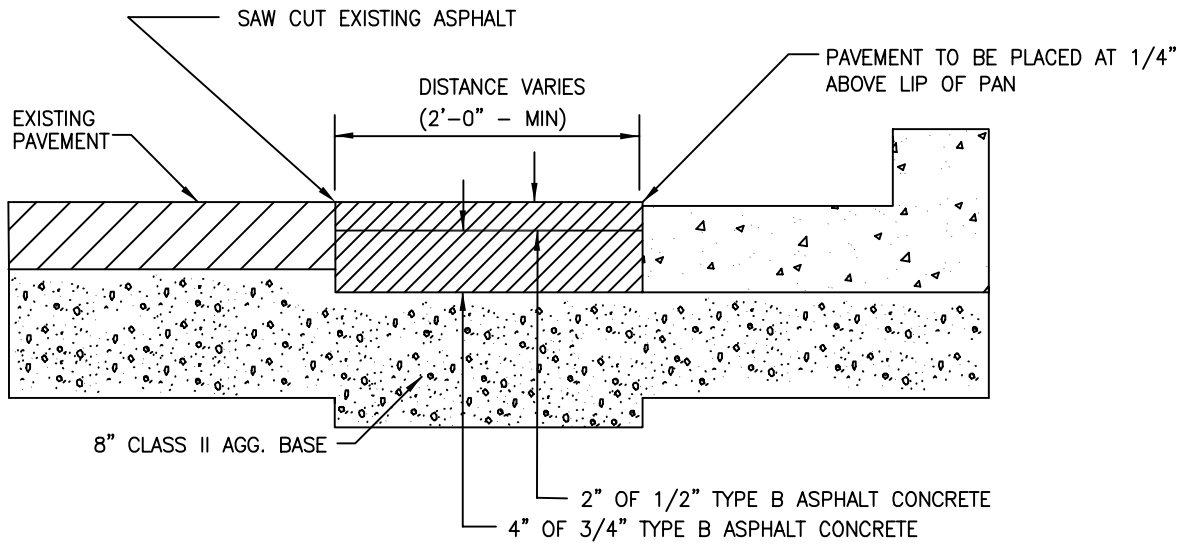
4/1/96
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INDUSTRIAL DRIVEWAY APPROACH COMMERCIAL SIDEWALK

DRAWING
NO.

A-10



NOTE: 1. TACK COAT VERTICAL EDGES



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Public Works Department

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4/1/96
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PAVEMENT TO NEW CURB TRANSITION

DRAWING
NO.

A-11

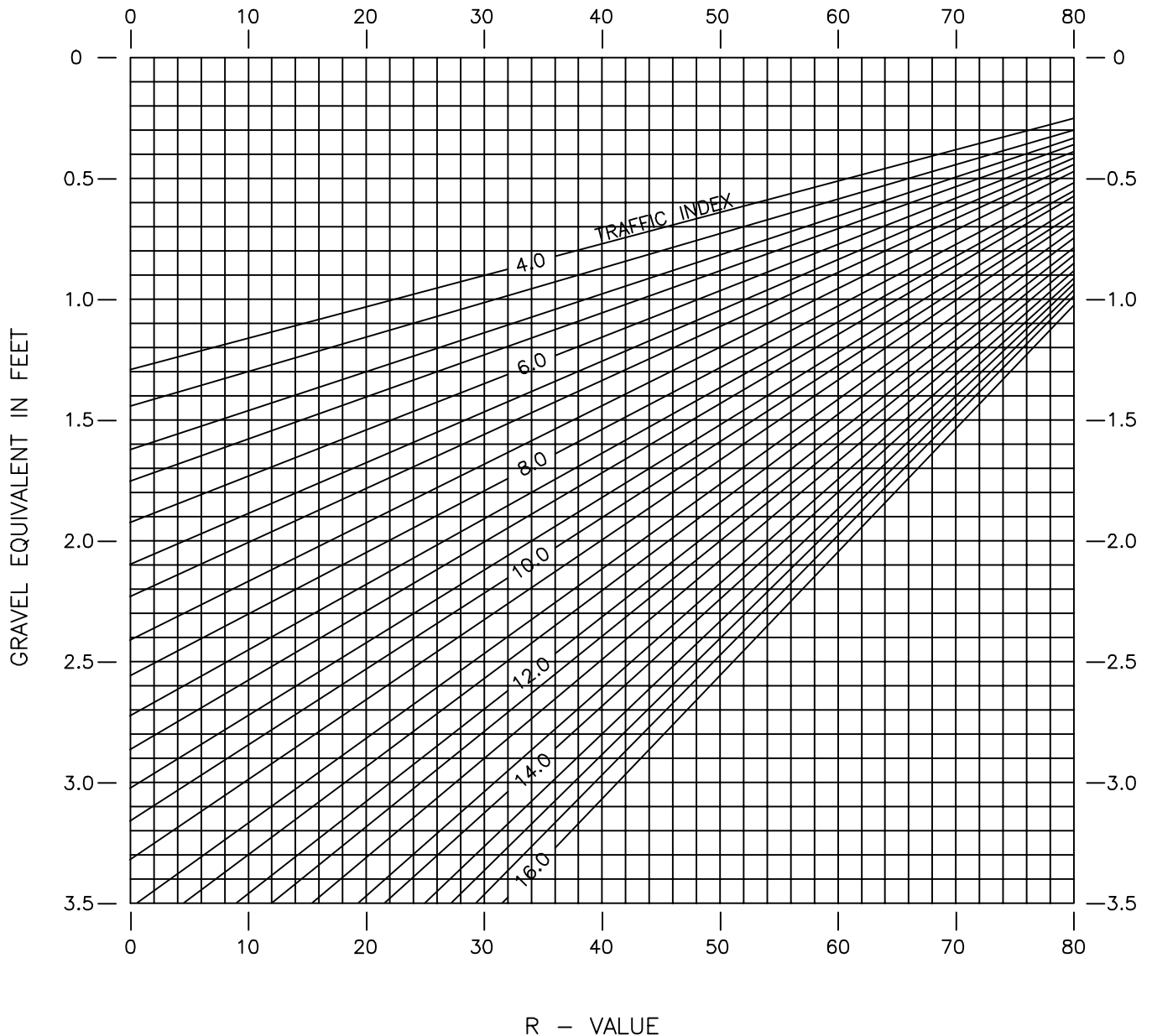
EQUATION:

$$G.E. = 0.0032 (T.I.)(100 - R)$$

G.E. = GRAVEL EQUIVALENT

T.I. = TRAFFIC INDEX

R. = RESISTANCE VALUE



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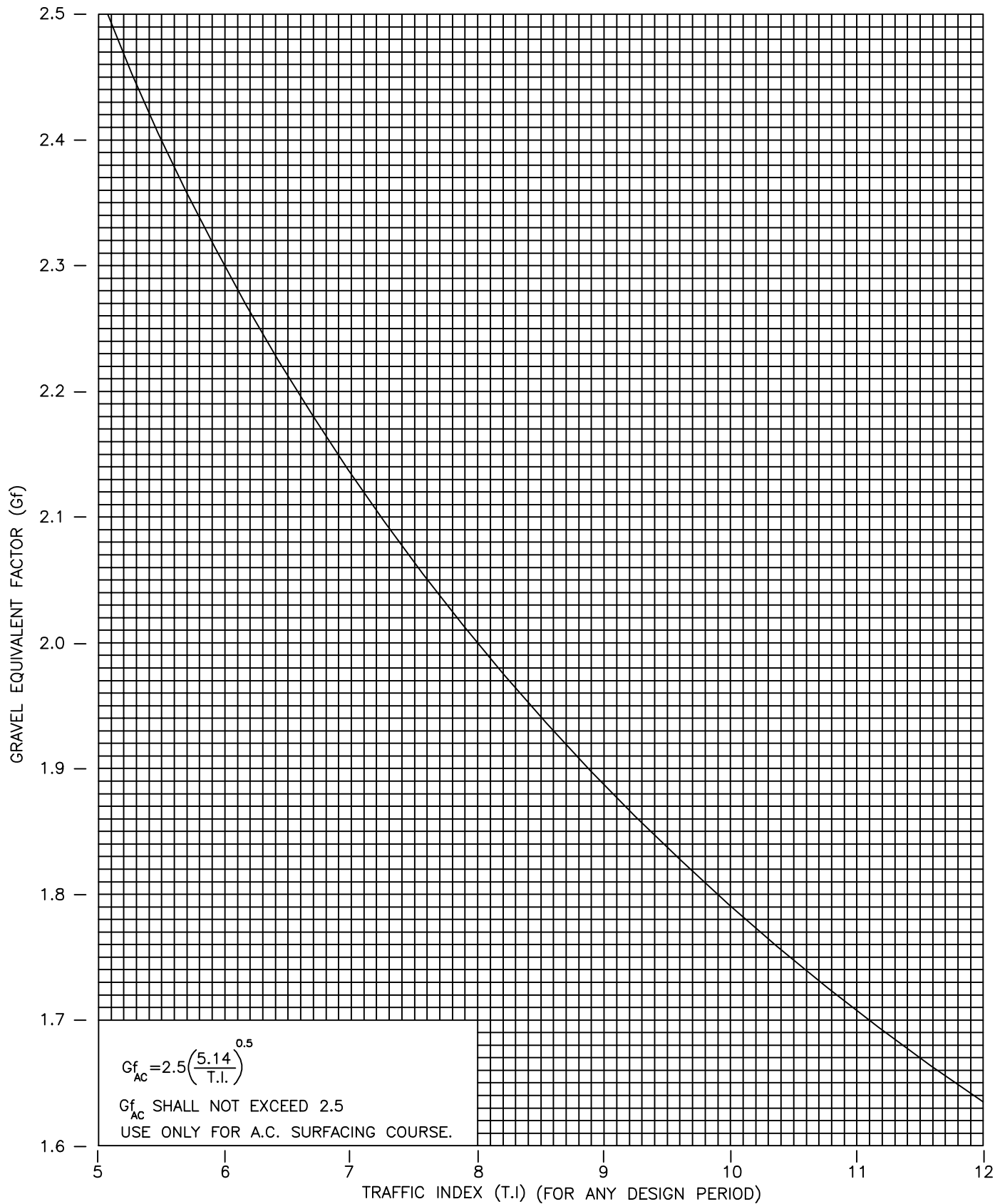
4/1/96
DATE

REVISD

STRUCTURAL DESIGN CHART FOR FLEXIBLE PAVEMENTS

DRAWING
NO.

A-12



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Public Works Department

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CITY ENGINEER

4/1/96
DATE

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RELATIONSHIP BETWEEN GRAVEL EQUIVALENT FACTOR FOR ASPHALT CONCRETE AND TRAFFIC INDEX

DRAWING
NO.

A-13

GRAVEL EQUIVALENT FACTORS

MATERIAL

GRAVEL EQUIVALENT FACTOR (Gf)

LEAN CONCRETE BASE (LCB)	1.9
CLASS A CEMENT TREATED BASE (CTB)	1.7
ASPHALT TREATED PERMEABLE MATERIAL (ATPM)	1.4
OPEN GRADED ASPHALT CONCRETE (OGAC)	1.4
CLASS B CEMENT TREATED BASE (CTB)	1.2
ASPHALT TREATED BASE	1.2
SOIL CEMENT	1.2
AGGREGATE BASE	1.1
AGGREGATE SUBBASE	1.0
LIME TREATED BASE (LTB)	0.9 + (unconfined compressive strength in psi / 1000)

GRAVEL EQUIVALENTS OF FULL DEPTH ASPHALT CONCRETE

A.C. THICKNESS (FT.)	TRAFFIC INDEX *								
	6	7	8	9	10	11	12	13	14
0.55 — — — — —	1.30	1.20	1.12	1.05	1.00	0.95	0.92	0.87	0.85
0.60 — — — — —	1.44	1.33	1.24	1.17	1.10	1.06	1.02	0.97	0.94
0.65 — — — — —	1.60	1.48	1.38	1.30	1.23	1.17	1.13	1.08	1.05
0.70 — — — — —	1.79	1.65	1.54	1.45	1.37	1.31	1.26	1.20	1.17
0.75 — — — — —	1.97	1.82	1.70	1.60	1.52	1.45	1.39	1.33	1.29
0.80 — — — — —		1.99	1.86	1.75	1.66	1.59	1.53	1.46	1.41
0.85 — — — — —		2.14	2.00	1.88	1.78	1.70	1.64	1.56	1.52
0.90 — — — — —		2.31	2.17	2.04	1.93	1.84	1.77	1.69	1.64
0.95 — — — — —			2.35	2.21	2.09	2.00	1.92	1.83	1.78
1.00 — — — — —			2.51	2.36	2.23	2.13	2.05	1.96	1.90
1.05 — — — — —			2.67	2.51	2.38	2.27	2.18	2.08	2.02
1.10 — — — — —				2.68	2.54	2.42	2.33	2.22	2.16
1.15 — — — — —				2.83	2.68	2.56	2.46	2.35	2.38
1.20 — — — — —					2.82	2.70	2.59	2.48	2.40
1.25 — — — — —					2.98	2.85	2.74	2.62	2.54
1.30 — — — — —					3.15	3.00	2.89	2.76	2.68
1.35 — — — — —						3.16	3.03	2.90	2.81
1.40 — — — — —						3.31	3.18	3.04	2.95
1.45 — — — — —						3.47	3.33	3.18	3.09
1.50 — — — — —							3.48	3.32	3.22
1.55 — — — — —							3.62	3.46	3.36
1.60 — — — — —							3.77	3.61	3.50
1.65 — — — — —								3.76	3.65
1.70 — — — — —								3.90	3.78
1.75 — — — — —								4.06	3.94

* SAFETY FACTOR OF 0.10 TO BE ADDED TO TOTAL GE BEFORE ENTERING TI COLUMN.

R-VALUE: CLASS B CTB=80
AB=78

ASB CLASS 1 = 60
ASB CLASS 2 = 50
ASB CLASS 3 = 40
ASB CLASS 4 = 50



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4/1/96

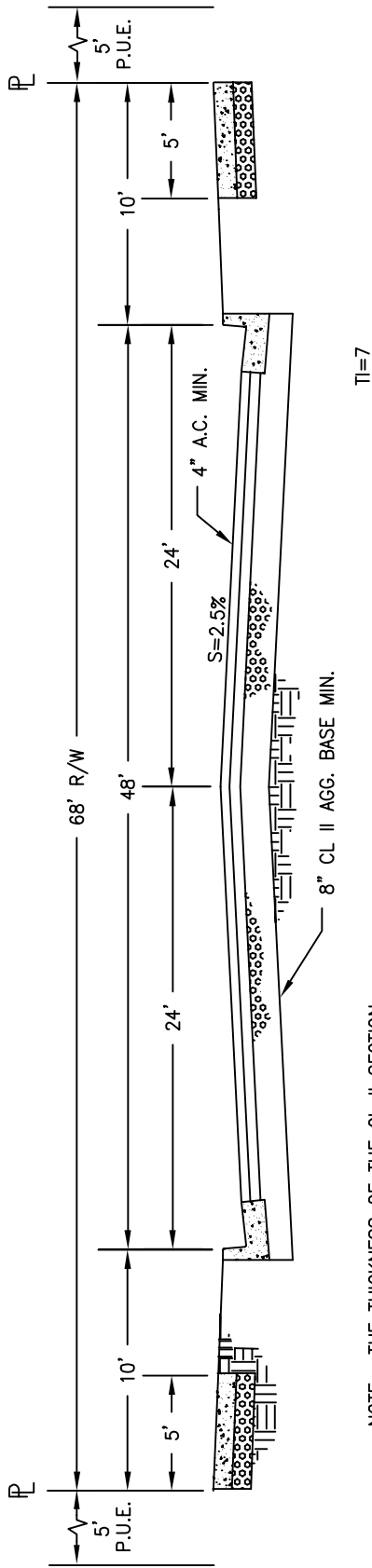
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GRAVEL EQUIVALENTS AND EQUIVALENT FACTORS

DRAWING
NO.

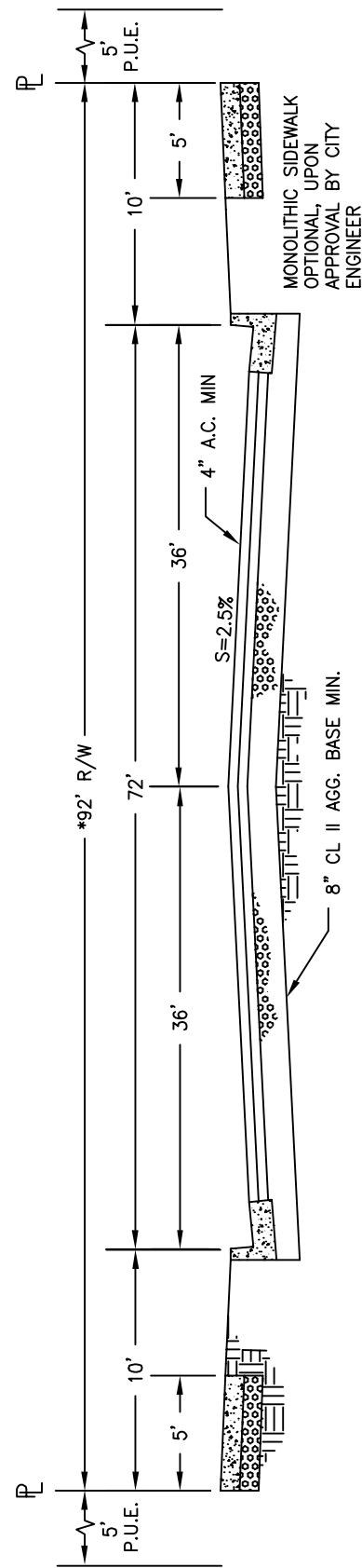
A-14



NOTE: THE THICKNESS OF THE CL II SECTION IS DETERMINED BY THE CITY ENGINEER.

SIDEWALK LOCATION SUBJECT TO APPROVAL BY THE CITY ENGINEER.

INDUSTRIAL



4 LANE UNDIVIDED ARTERIAL
(Bike Lane Required)

*: Developer required to provide 36' Right Of Way, and 26' pavement surface (42' Right Of Way, and 32' pavement for new street extension). City participation or fee credit for remainder portion may be applicable.



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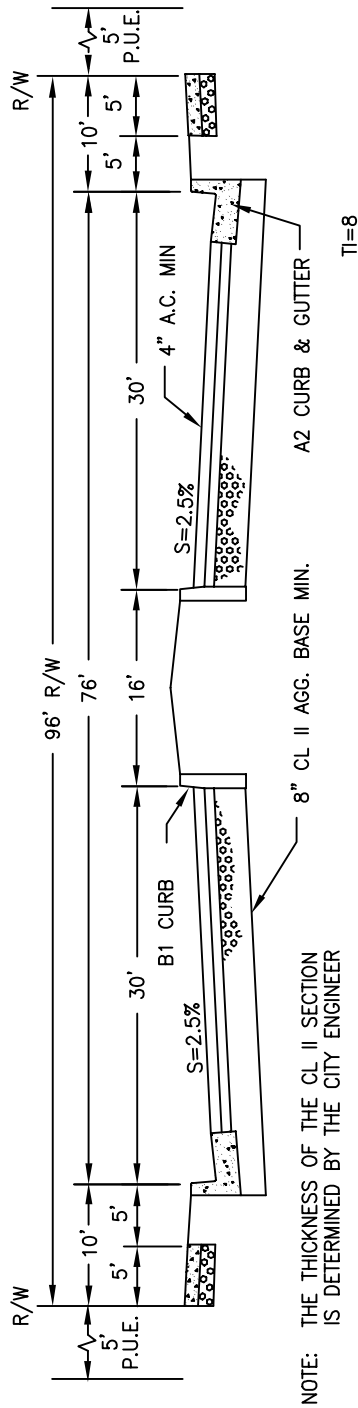
4/1/96
DATE

8/6/98
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STREET SECTION

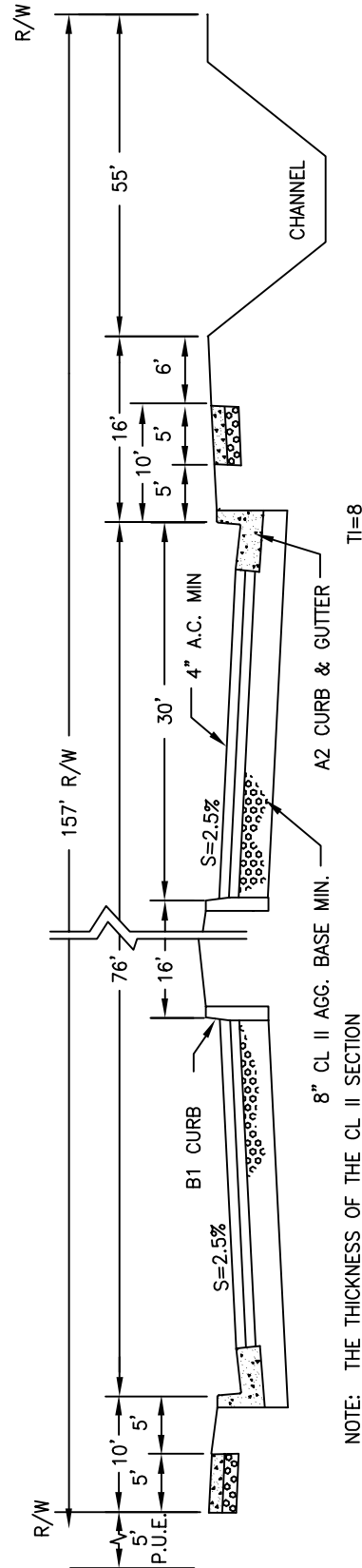
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NO.

A-15



SUTTER "BUTTERFIELD" BOULEVARD SECTION THROUGH MORGAN HILL BUSINESS PARK
(Bike Lane Required)
NTS

*: Developer required to provide 36' Right Of Way, and 26' pavement surface (42' Right Of Way, and 32' pavement for new street extension). City participation or fee credit for remainder portion may be applicable.



TYPICAL SUTTER "BUTTERFIELD" BOULEVARD SECTION WITH DRAINAGE CHANNEL
(Bike Lane Required)
NTS

*: Developer required to provide 36' Right Of Way, and 26' pavement surface (42' Right Of Way, and 32' pavement for new street extension). City participation or fee credit for remainder portion may be applicable.



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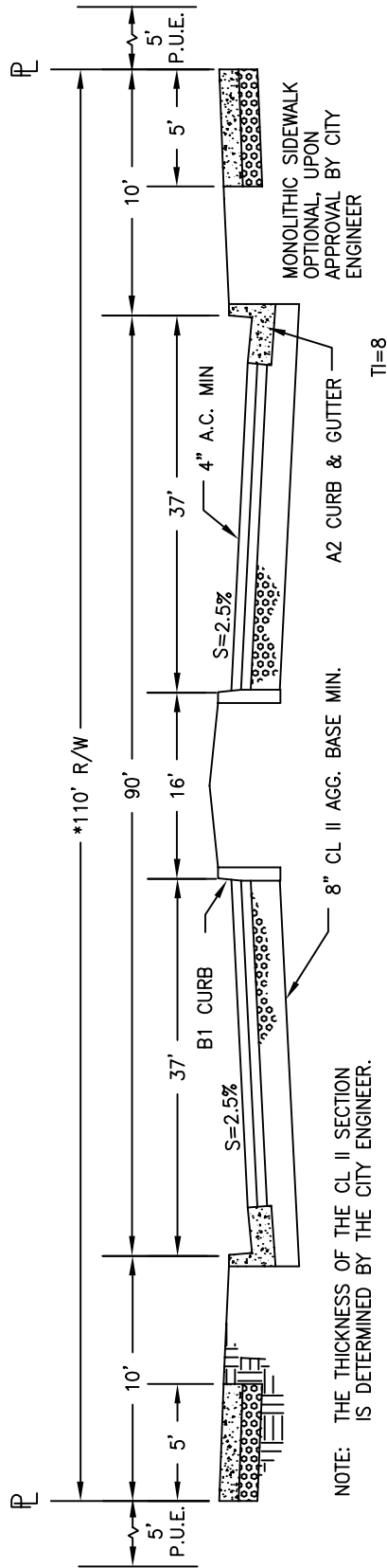
4/1/96
DATE

6/8/00
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STREET SECTION BUTTERFIELD BOULEVARD

DRAWING
NO.

A-16

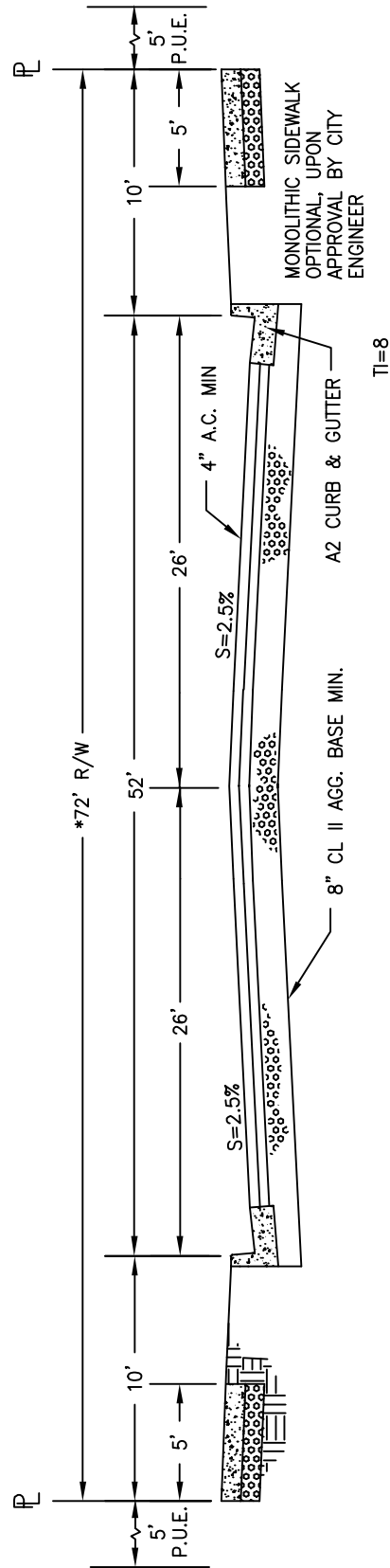


4 LANE DIVIDED ARTERIAL
(Bike Lane Required)

NOTE: THE THICKNESS OF THE CL II SECTION IS DETERMINED BY THE CITY ENGINEER.

SIDEWALK LOCATION SUBJECT TO CITY ENGINEER APPROVAL.

*: Developer required to provide 36' Right Of Way, and 26' pavement surface. City participation or fee credit for remainder may be applicable.



2 LANE COLLECTOR
(Bike Lane Required)

*: 64' R/W width acceptable on less significant collector streets.



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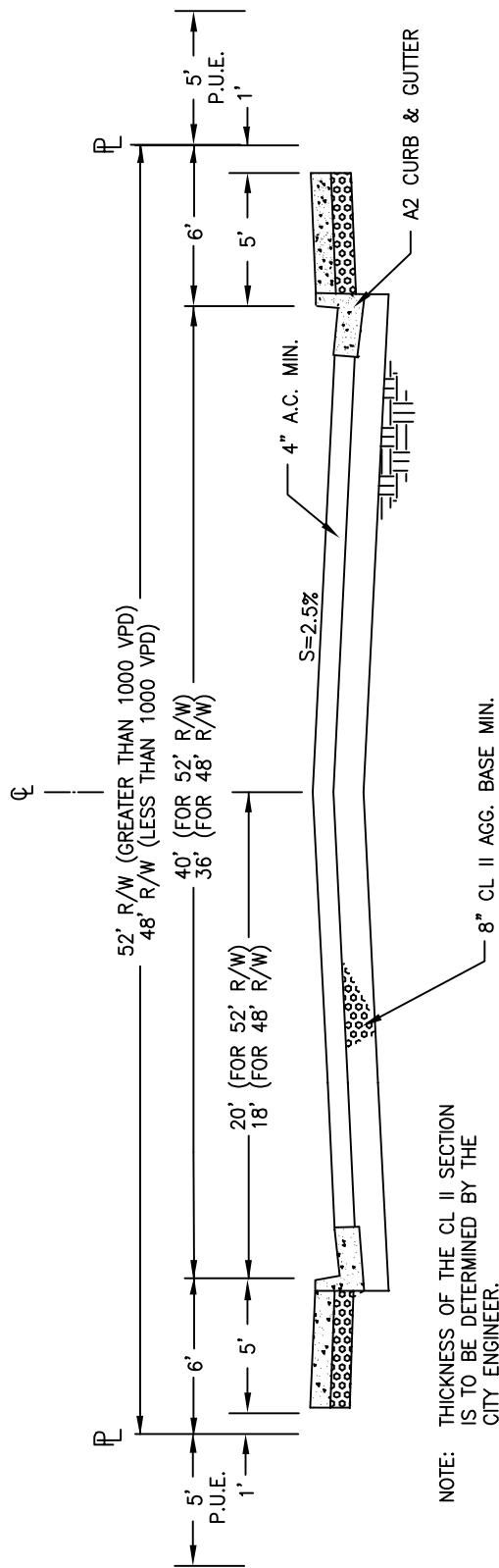
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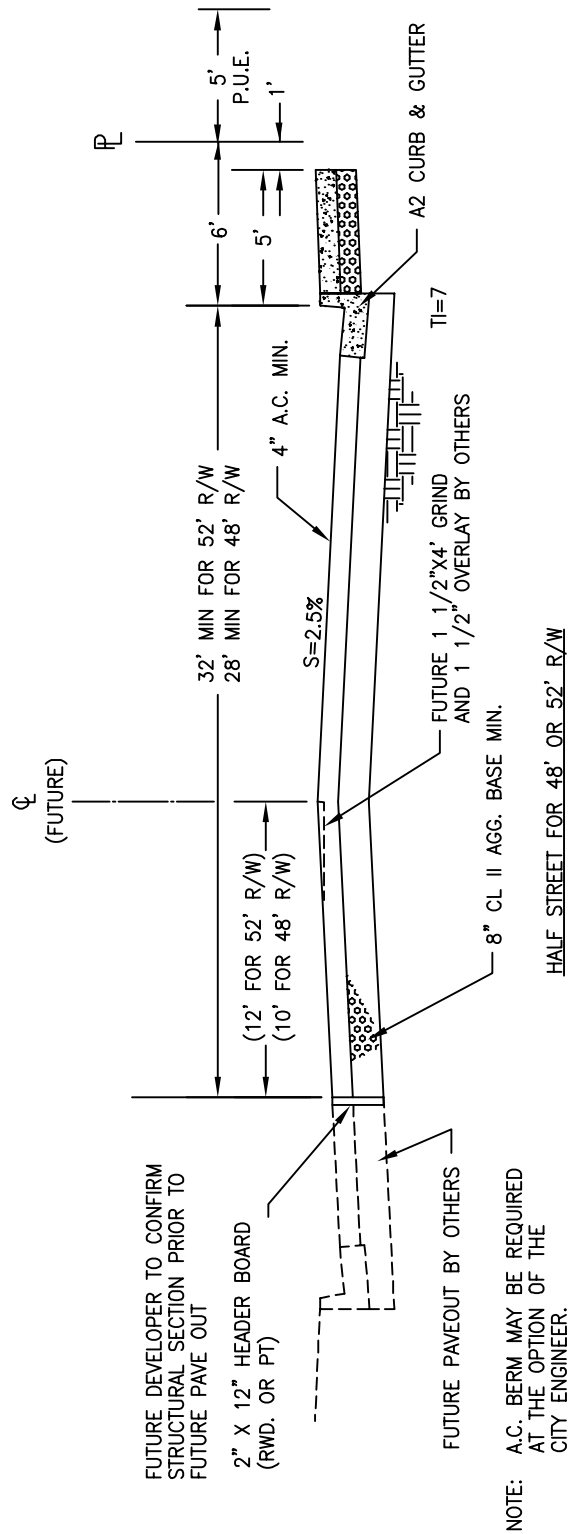
STREET SECTION

DRAWING
NO.

A-17



RESIDENTIAL STREET SECTION (FOR 48' OR 52' R/W)



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Public Works Department

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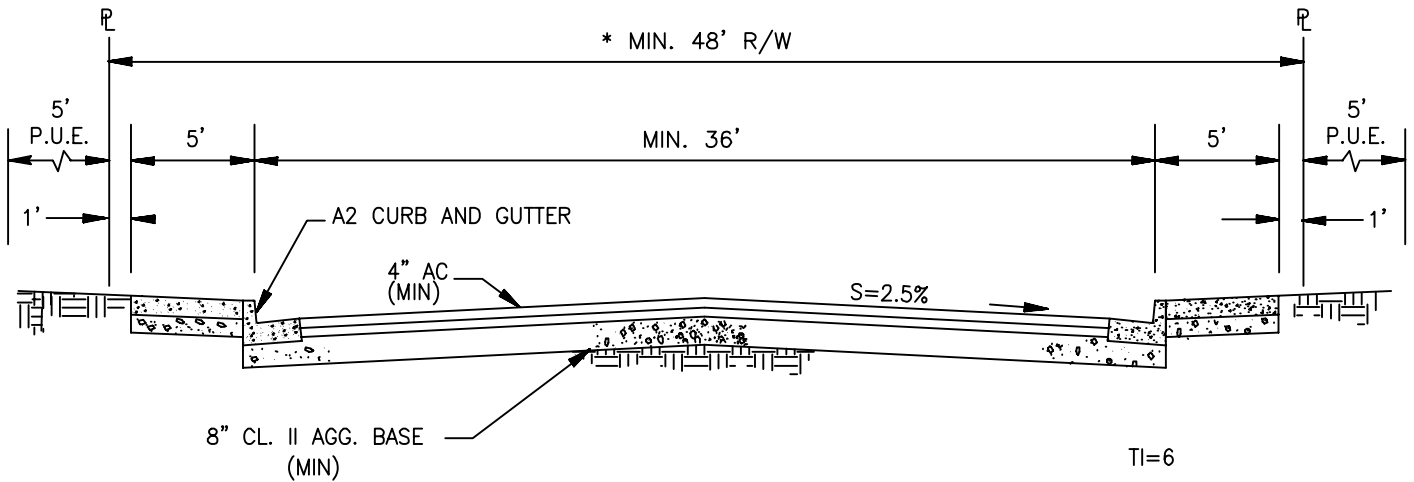
7/5/96
DATE

8/6/98
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RESIDENTIAL STREET SECTION AND HALF STREET SECTION

DRAWING
NO.

A-18

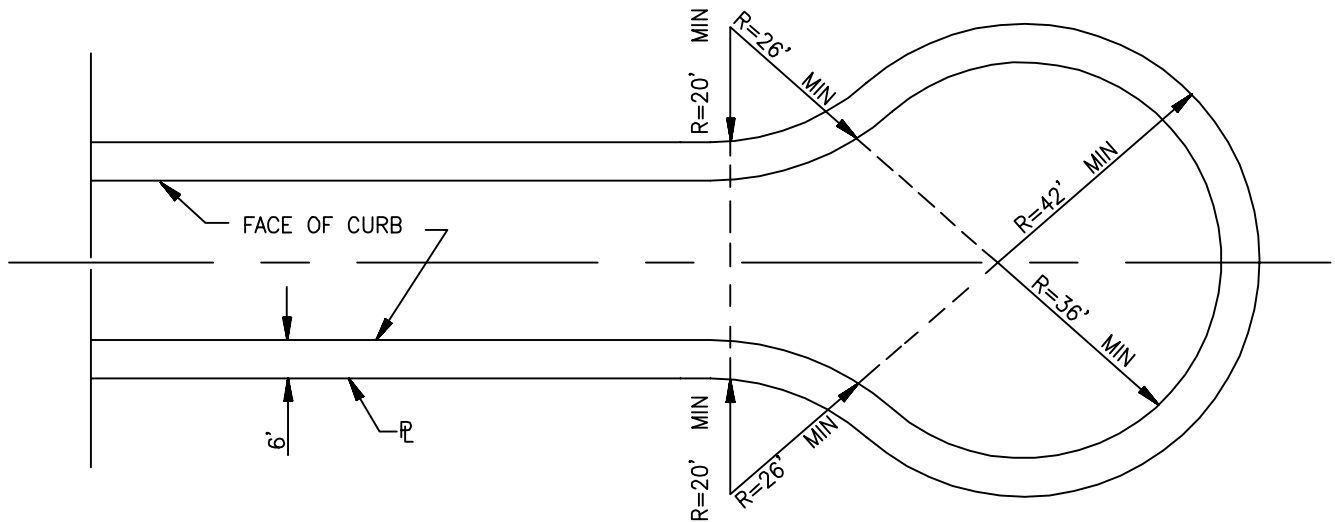


TYPICAL CUL-DE-SAC STREET SECTION (WITH ≤ 200 A.D.T.)

NOTE: PARKING SHALL BE ON BOTH SIDES OF THE STREET.

MAXIMUM CUL-DE-SAC LENGTH (WITHOUT SECONDARY FIRE ACCESS), FROM THE CENTER OF THE INTERSECTING STREET TO THE CENTER OF THE TURN AROUND, SHALL NOT EXCEED 600'.

*: RIGHT-OF-WAY OF 52' MAY BE USED FOR CUL-DE-SACS. SEE RESIDENTIAL STREET SECTION DETAIL A-18.



INCREASE RADIUS AS REQUIRED FOR LOT FRONTAGE

TYPICAL CUL-DE-SAC DATA



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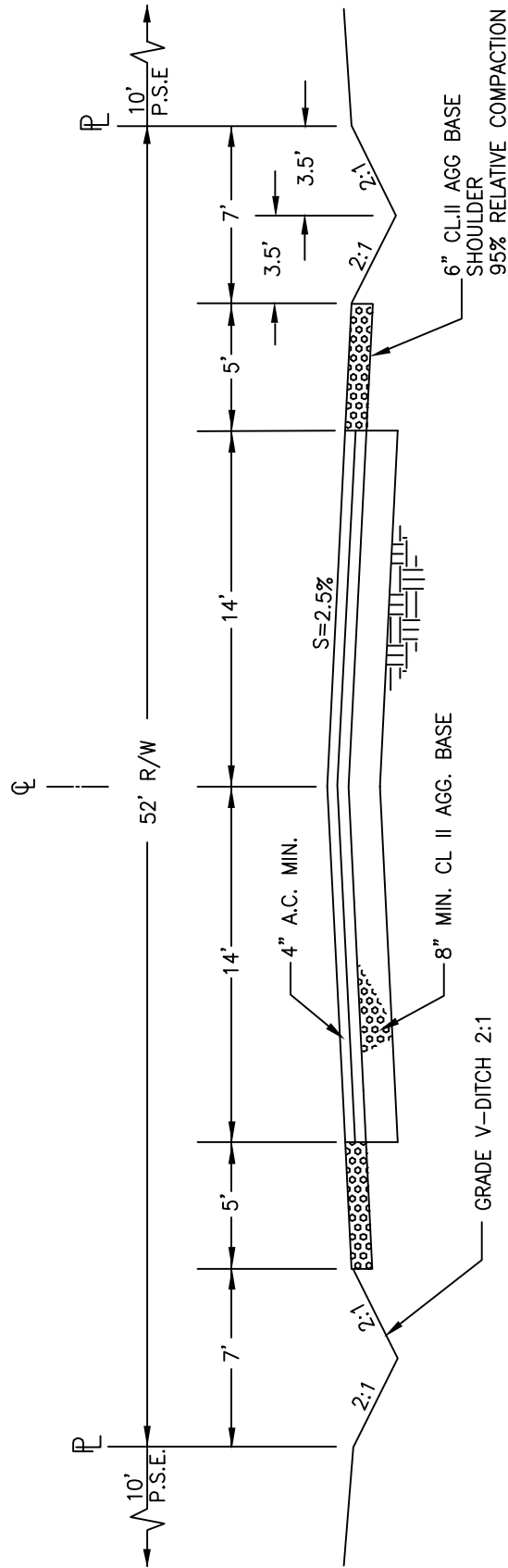
7/5/96
DATE

8/6/98
REVISED

STREET SECTION

DRAWING
NO.

A-19



NOTE: THICKNESS OF THE CL II SECTION IS TO BE DETERMINED BY THE CITY ENGINEER.

RURAL STREET SECTION (FOR 52' R/W)

(No On Street Parking)



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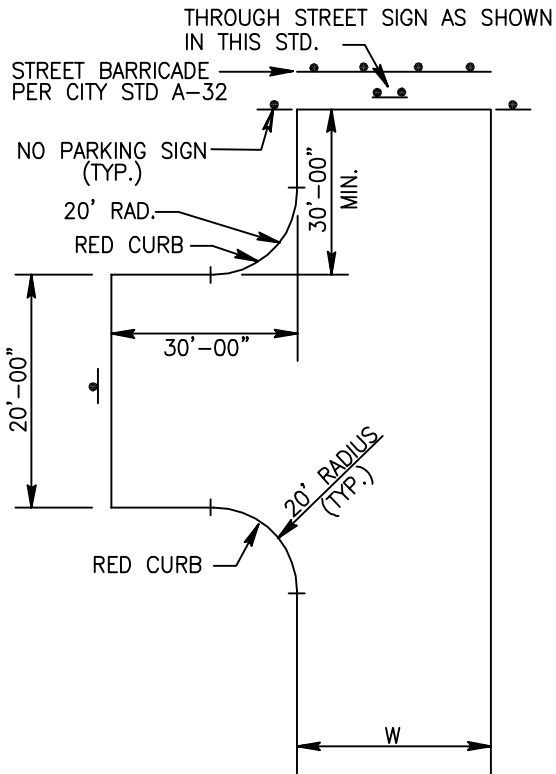
7/5/96
DATE

REVISD

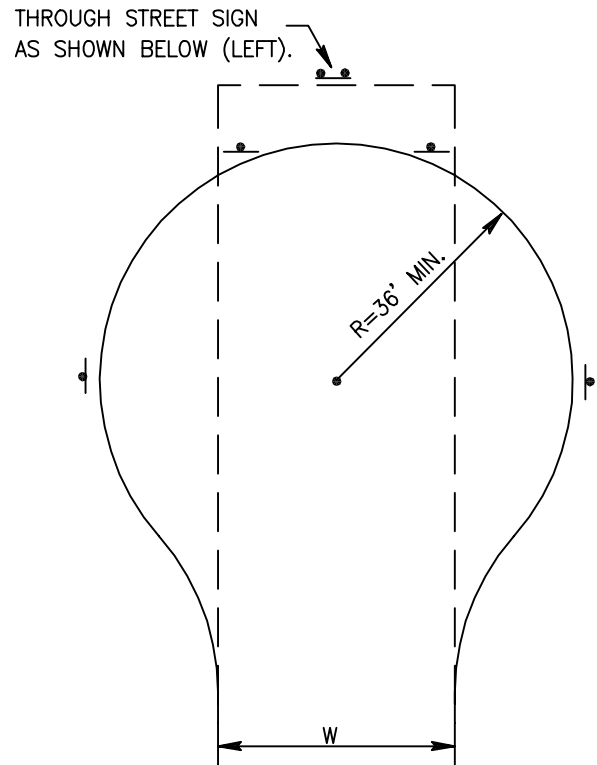
RURAL STREET SECTION

DRAWING
NO.

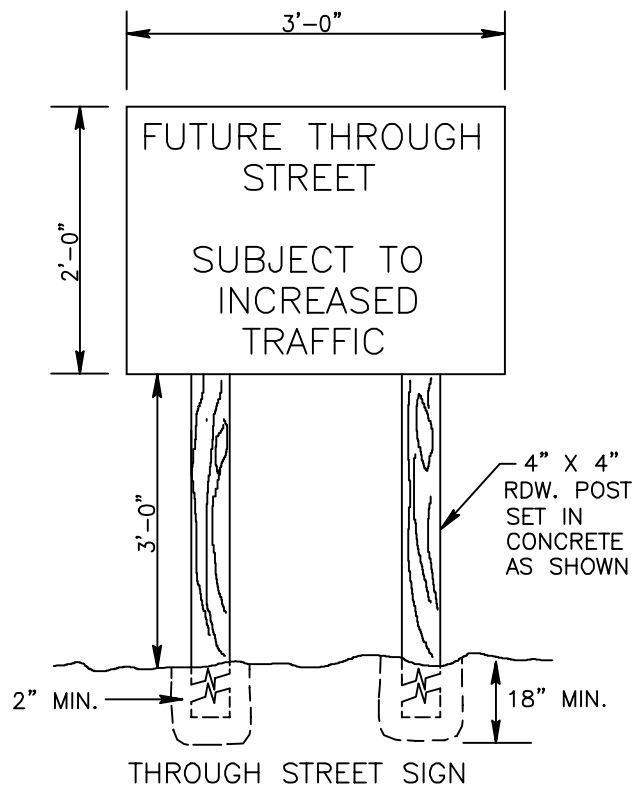
A-20



TEMPORARY HAMMERHEAD



TEMPORARY CUL-DE-SAC



THROUGH STREET SIGN

NOTES:

1. SIGN SHALL BE REFLECTORIZED PER CAL TRANS STANDARD SHEETING BLACK ON WHITE METAL SIGN WITH 2" LETTERS.
2. W = 20' ON TEMPORARY HAMMERHEAD.
3. DRIVEWAY APPROACHES MAY BE USED AS PART OF TEMPORARY HAMMERHEAD, PROVIDED THEY MEET THE DIMENSIONS OF THE TEMPLATE ABOVE.



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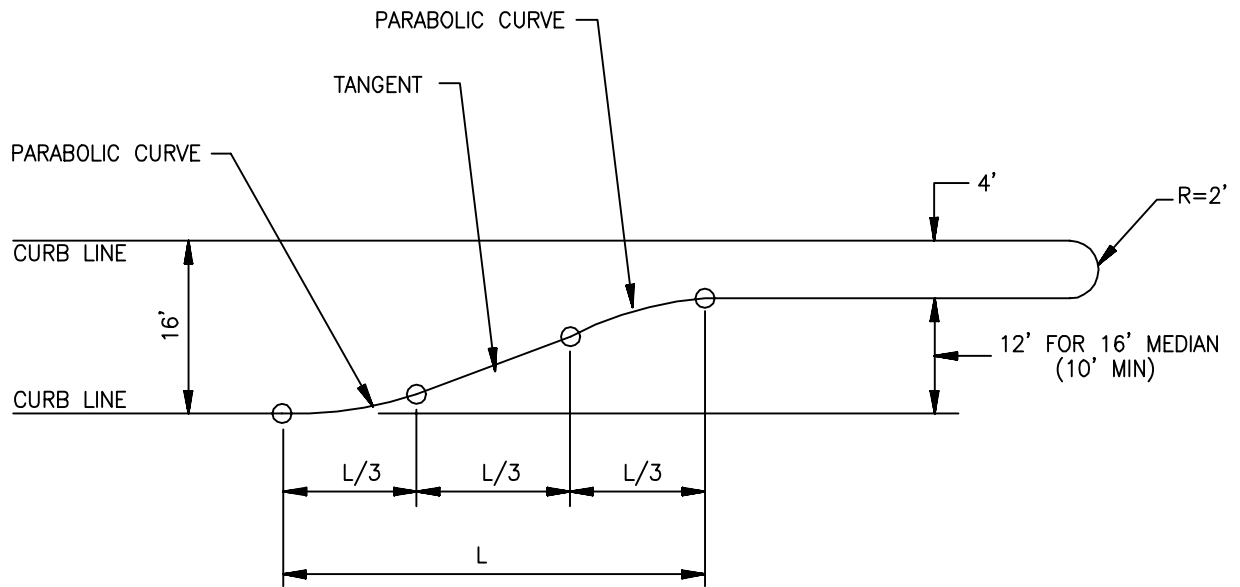
4/1/96
DATE

6/8/00
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TEMPORARY TURNAROUND
FOR FUTURE STREET

DRAWING
NO.

A-21



L=LENGTH OF TAPER				OFFSET DISTANCE FOR LANE WIDTH OF		
60'	90'	120'		10'	11'	12'
DIST FROM BEG OF TAPER						
5	7.5	10		.16	.17	.19
10	15.0	20		.62	.69	.75
15	22.5	30		1.41	1.55	1.69
20	30.0	40		2.50	2.75	3.00
30	45.0	60		5.00	5.50	6.00
40	60.0	80		7.50	8.25	9.00
45	67.5	90		8.59	9.45	10.31
50	75.0	100		9.38	10.31	11.25
55	82.5	110		9.84	10.83	11.81
60	90.0	120		10.00	11.00	12.00

NOTES:

1. OFFSETS ARE MEASURED FROM A BASE LINE WHICH IS THE CURB LINE EXTENDED.
2. DISTANCE ALONG THE BASE LINE IS MEASURED FROM THE POINT OF TANGENCY AT THE BEGINNING OF TAPER.
3. TAPER LENGTH SHALL BE 90' UNLESS OTHERWISE APPROVED.



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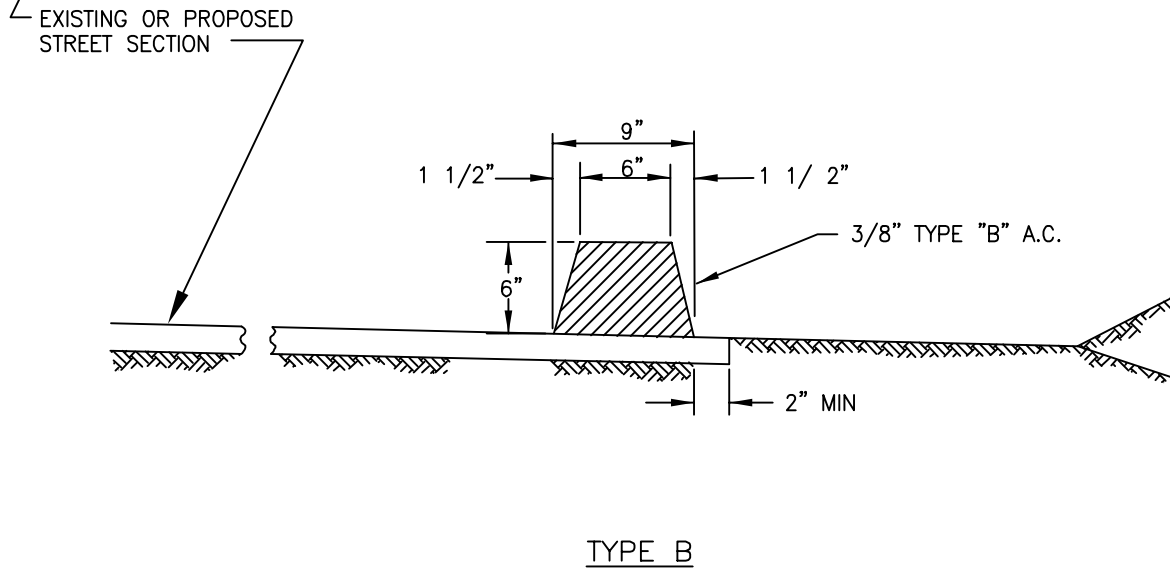
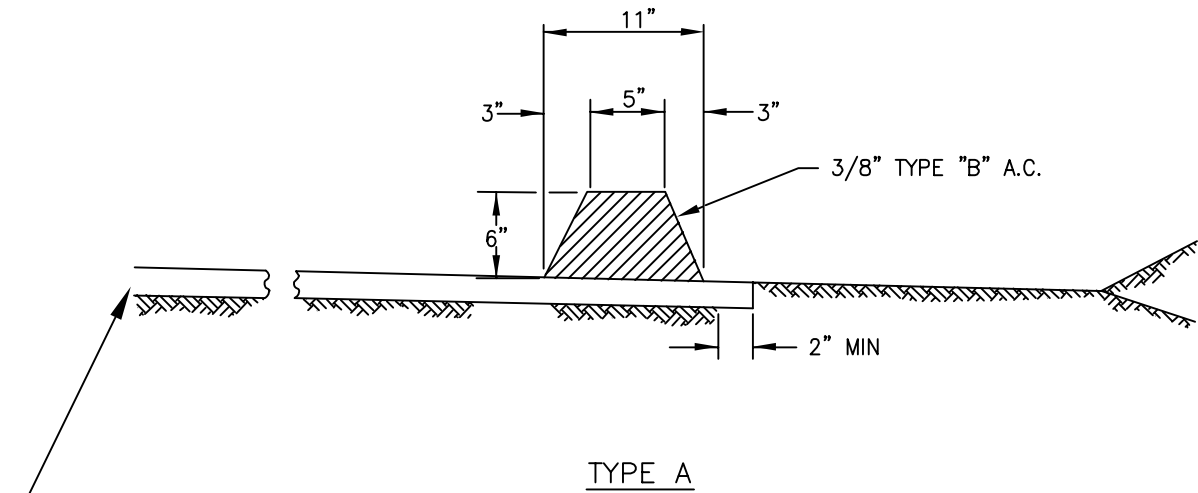
4/1/96
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STANDARD MEDIAN TAPER

DRAWING
NO.

A-23



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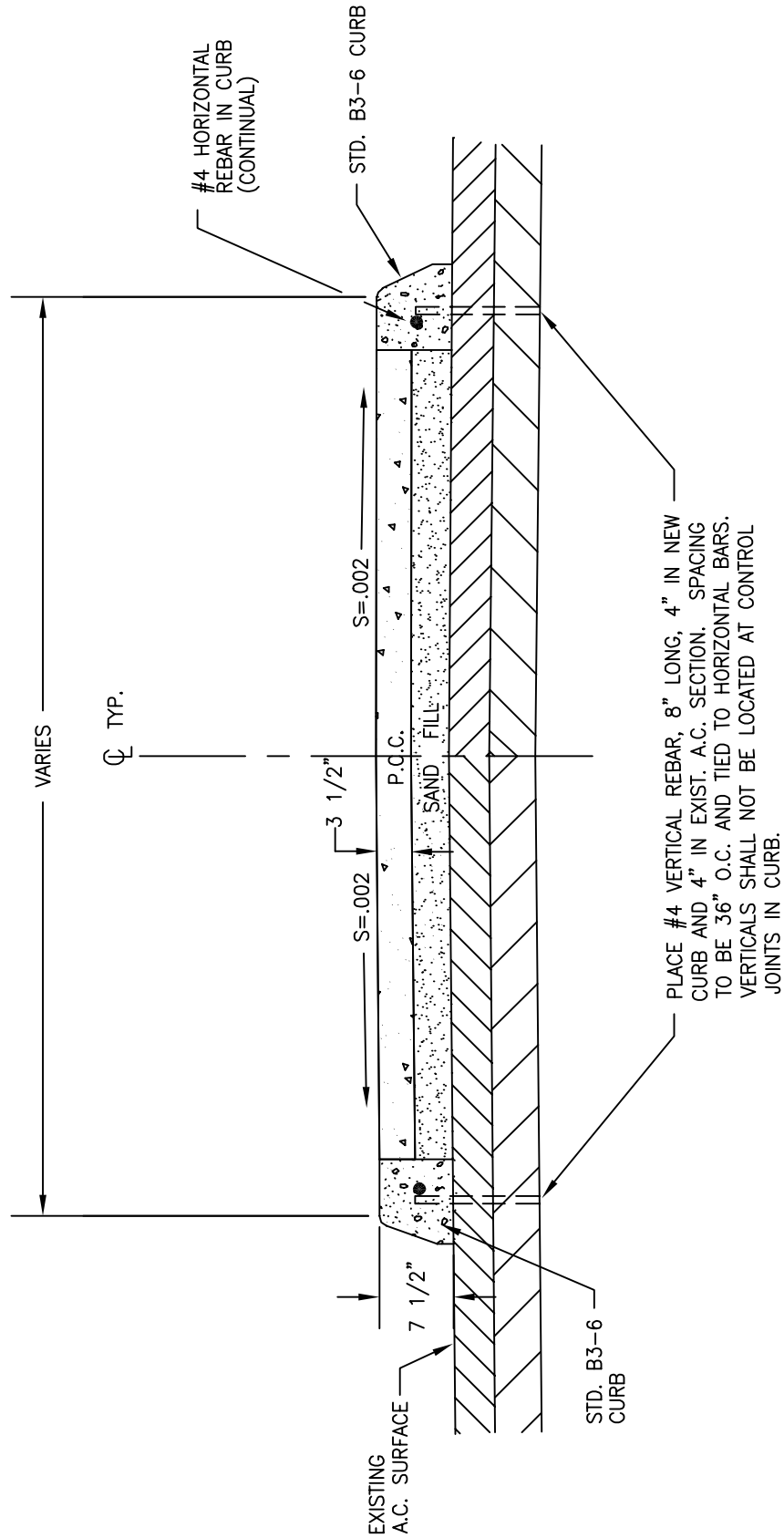
4/1/96
DATE

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ASPHALT CONCRETE BERM

DRAWING
NO.

A-24



NOTE: CONTRACTOR TO PLACE BLOCK OUTS IN CONCRETE FOR SIGN POSTS PER APPROVED TRAFFIC PLAN.



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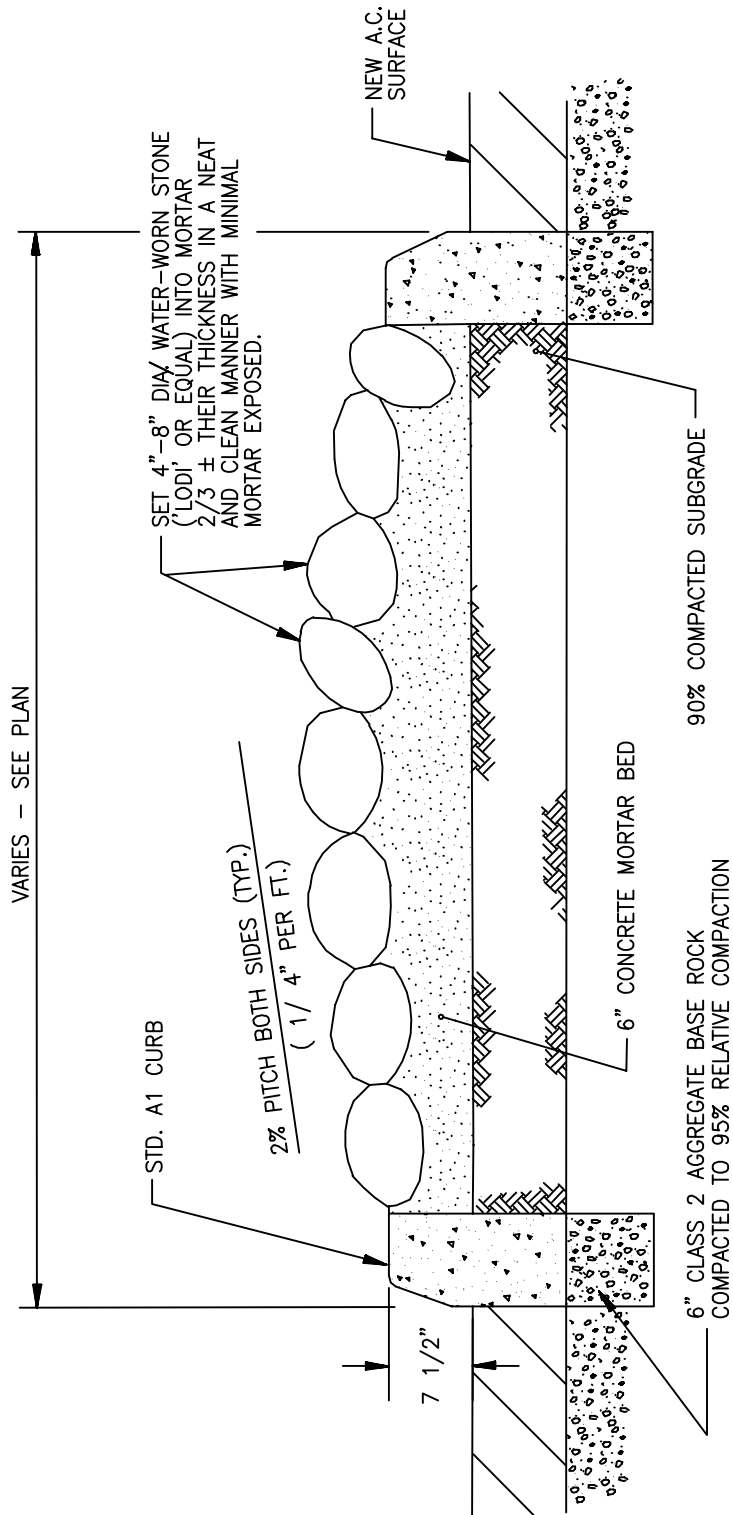
4/1/96
DATE

REVISED

PAVED MEDIAN ISLAND

DRAWING
NO.

A-25



NOTES:

1. AFTER THE COBBLESTONE HAS BEEN SET INTO THE MORTAR, EXCESSIVE MORTAR BETWEEN THE JOINTS OF THE COBBLESTONES SHALL BE CAREFULLY REMOVED AND RAKED IN A SMOOTH JOINT (PROTRUSION OF MORTAR IS NOT ALLOWED).
2. SEAL FINAL SURFACE WITH WATER SEALER.
3. UPON CITY ENGINEER APPROVAL, THE MEDIAN CENTER MAY BE PAVED (P.C.C.) PER DETAIL A-25, WITH A1 CURB APPLICATION.
4. CONTRACTOR TO PROVIDE BLOCK OUTS IN CONCRETE AND COBBLE PATTERN FOR SIGN POSTS.



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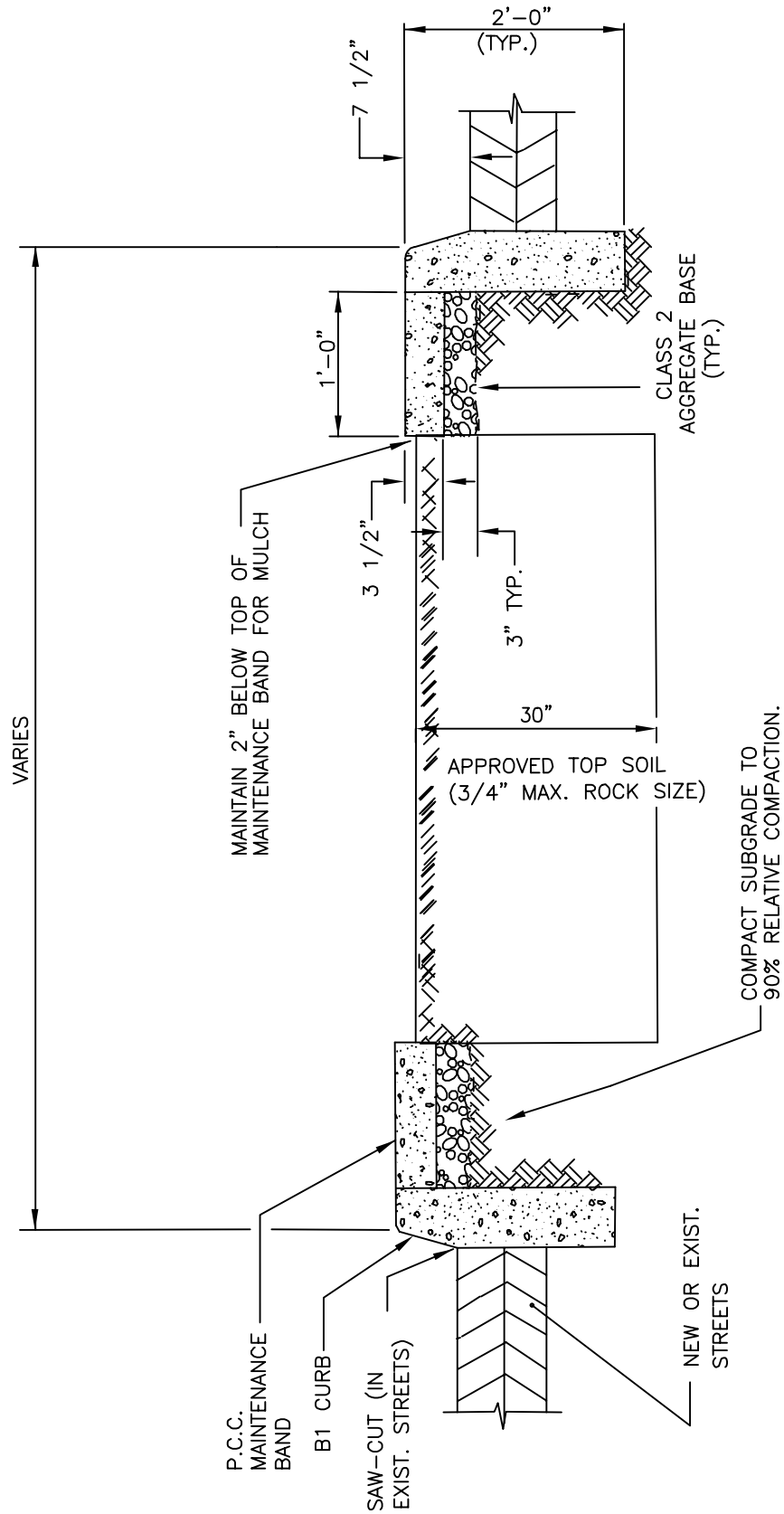
4/1/96
DATE

REVISED

COBBLESTONE MEDIAN ISLAND

DRAWING
NO.

A-26



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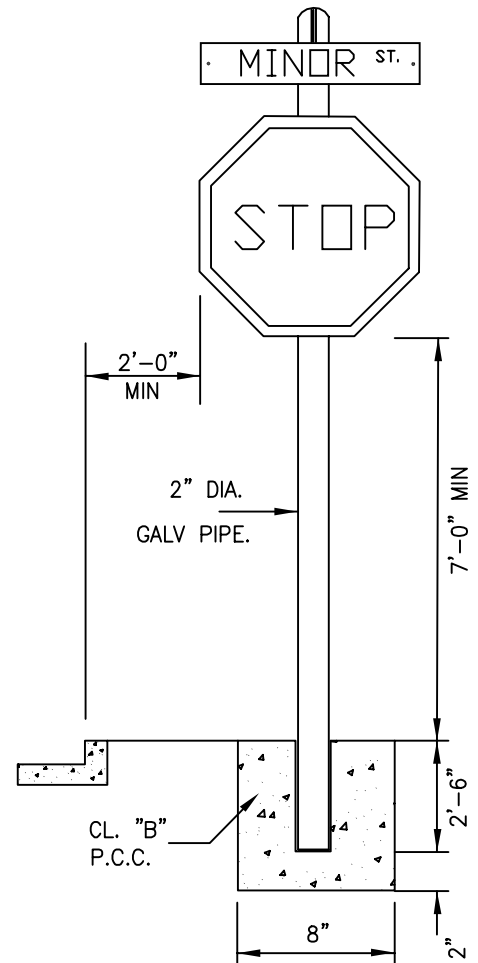
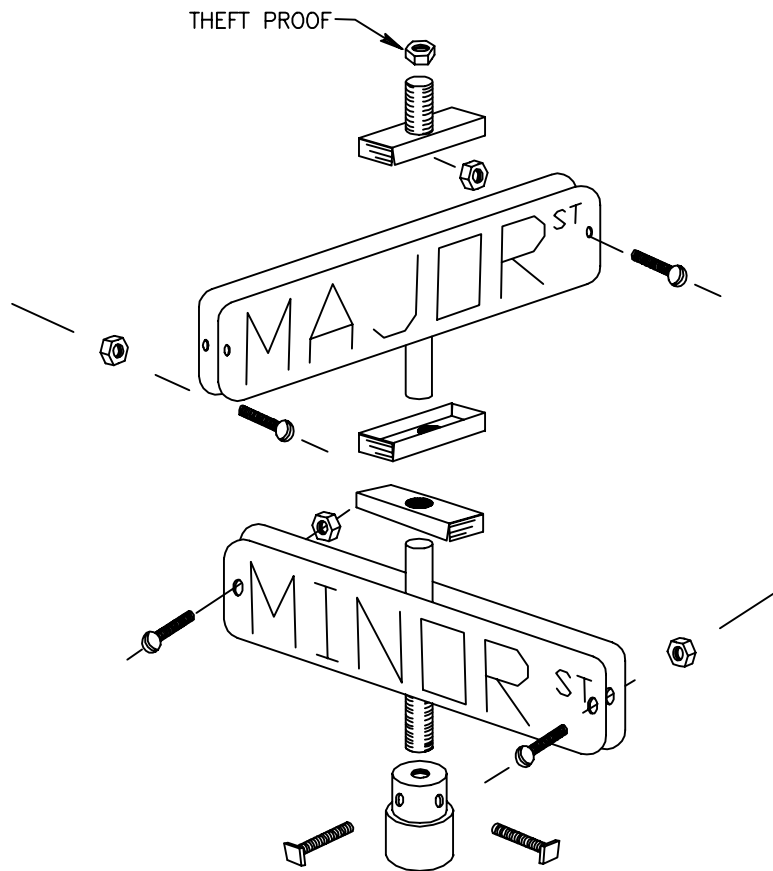
4/1/96
DATE

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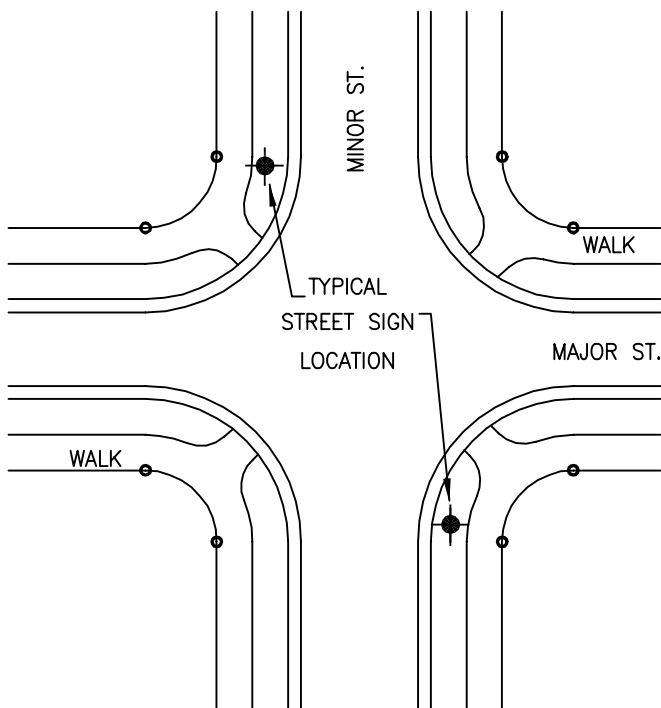
LANDSCAPE MEDIAN ISLAND

DRAWING
NO.

A-27



TYPICAL LOCATION PLAN



1. STREET NAMES SHALL BE IN 4" HIGH LETTERS - ABBREVIATIONS IN 2" HIGH LETTERS. LETTERS SHALL BE #2270-AR "SCOTCHLITE"
2. BACKGROUND SHALL BE HAWKINS & HAWKINS CAT. #V46B-2275 E, INTERSTATE BLUE, PER STATE OF CALIFORNIA SPECS.
3. STREET NAME SIGN SHALL BE HAWKINS & HAWKINS CAT. #HS-2C4P FLAT PLATE ALUMINUM, WITHOUT BORDER OR APPROVED EQUAL.
4. POST SHALL BE 2" IRON PIPE, GALV. 12'- 1/2" LONG WITH ONE END FINISHED TO RECEIVE MOUNTING CAP AND FITTINGS.



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4/1/96
DATE

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STREET NAME SIGN

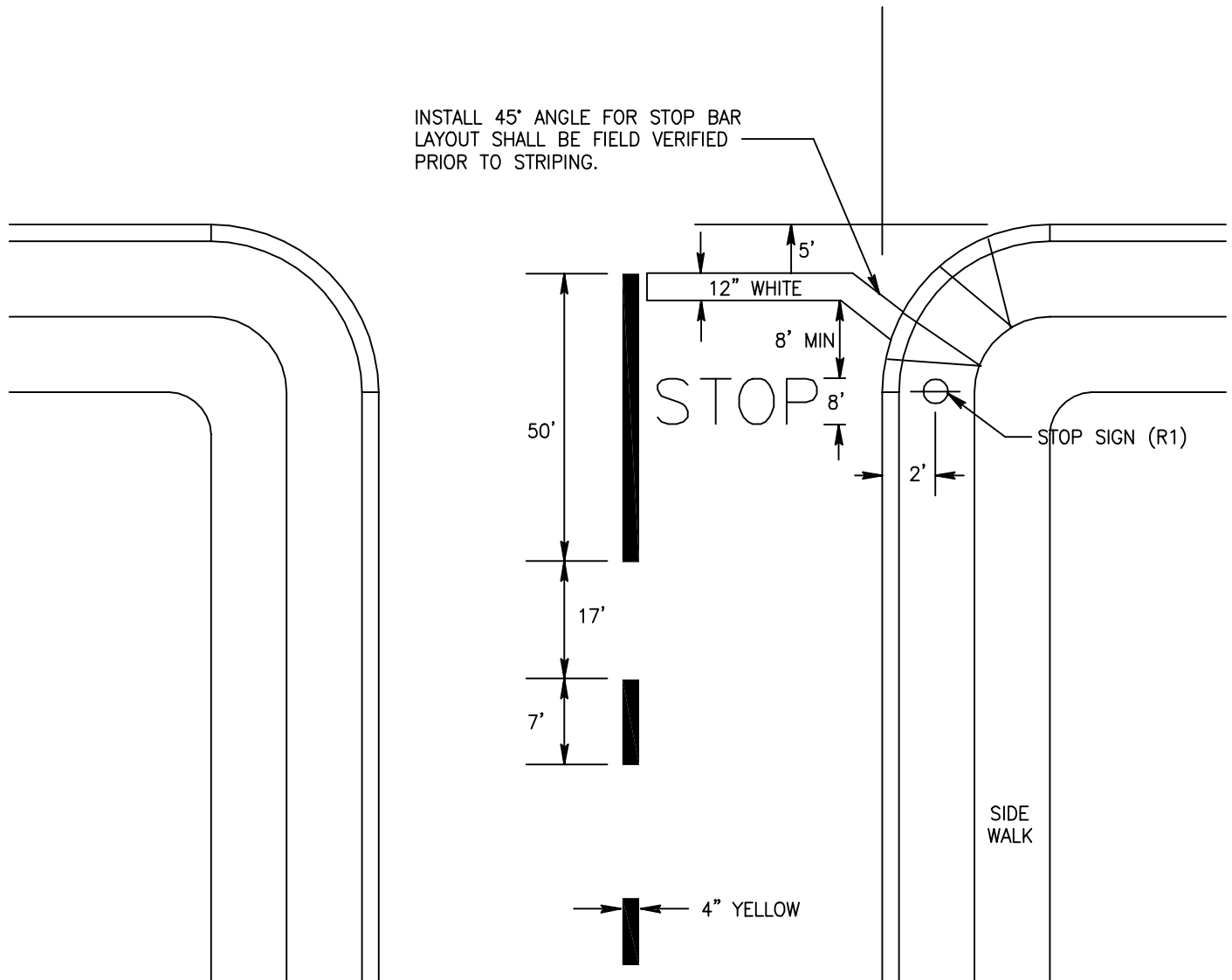
DRAWING
NO.

A-28

FACE OF CURB

ALL CENTERLINE STREET STRIPING SHALL BE DONE IN YELLOW PAINT WITH GLASS BEADS. THE STOP BAR AND "STOP" LETTERING SHALL BE DONE IN WHITE PAINT WITH GLASS BEADS. PAINT SHALL BE SOLVENT BORNE WITH LESS THAN 250 V.O.C'S OR AS DETERMINED BY BAY AREA AIR QUALITY MANAGEMENT. WATER BORNE PAINT MAY BE USED UPON CITY ENGINEER APPROVAL.

INSTALL 45° ANGLE FOR STOP BAR LAYOUT SHALL BE FIELD VERIFIED PRIOR TO STRIPING.



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Jim Oakcraft
CITY ENGINEER

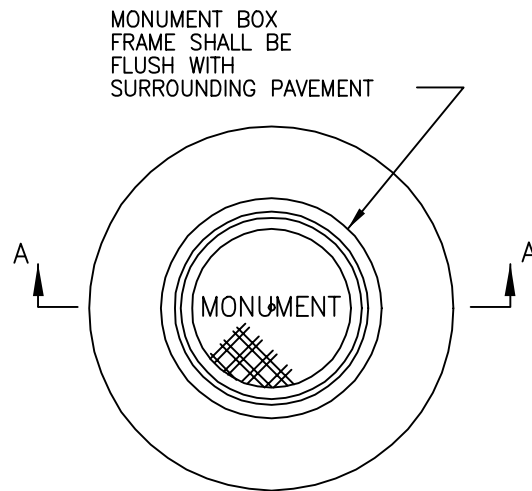
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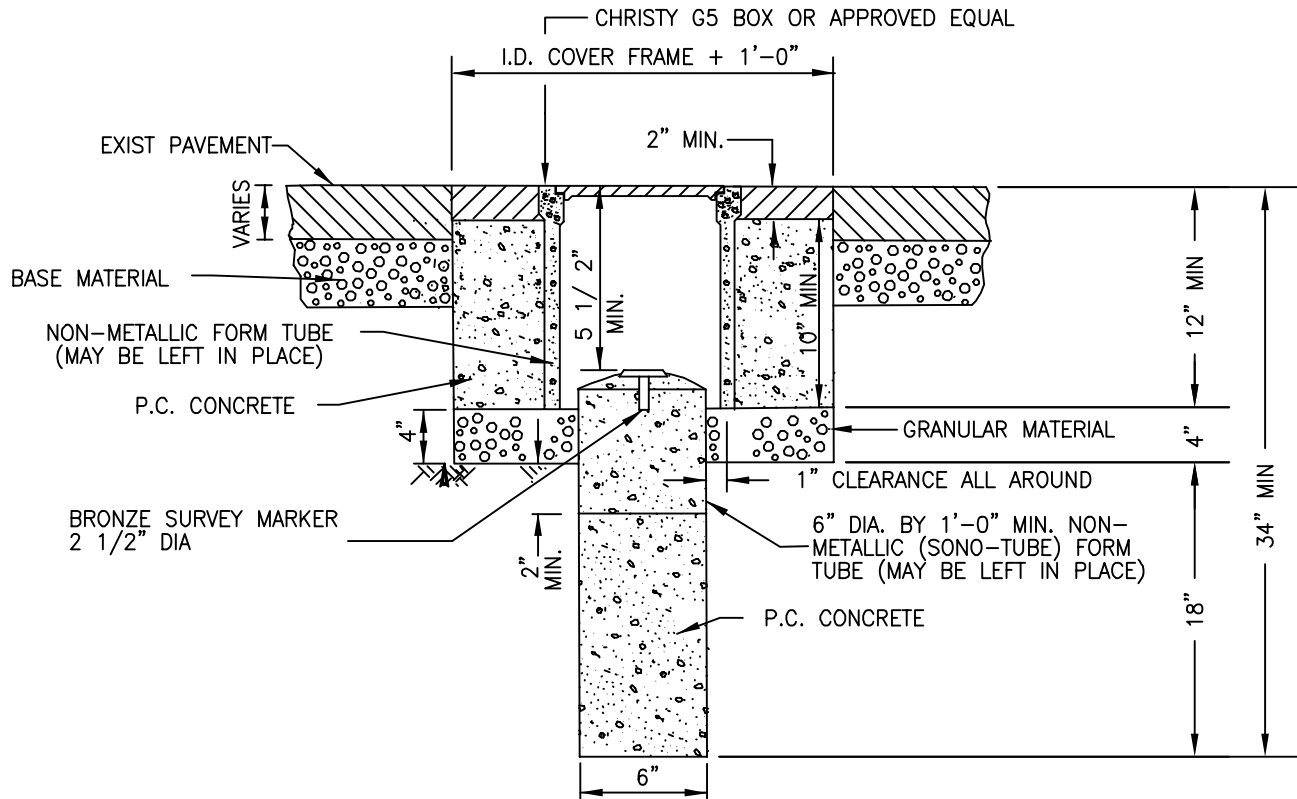
STREET STRIPING & STOP BAR

DRAWING
NO.

A-29



COVER INSTALLATION
PLAN VIEW



SECTION A
STANDARD MONUMENT INSTALLATION



City of Morgan Hill
Public Works Department

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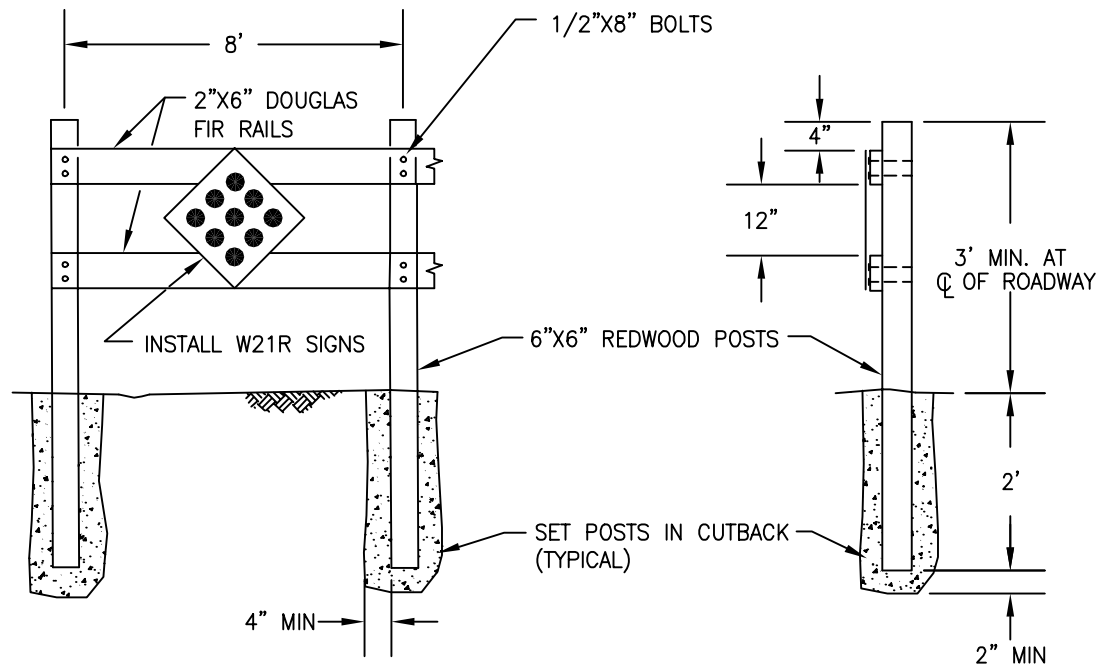
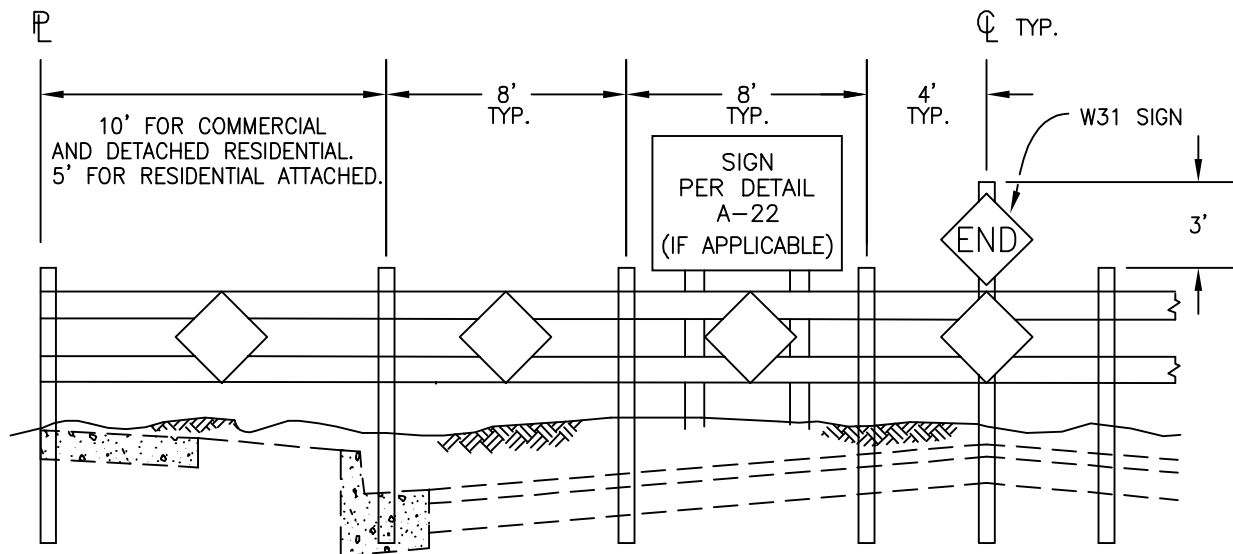
4/1/96
DATE

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STANDARD CITY MONUMENT

DRAWING
NO.

A-30



NOTES:

1. PAINT ALL EXPOSED WOOD SURFACES WITH ONE APPLICATION OF EXTERIOR WOOD PRIMER AND TWO COATS EXTERIOR WHITE ENAMEL.
2. SECURE EACH JOINT WITH TWO GALVANIZED 1/2"X8" BOLTS. ALL RAIL ENDS TO MEET AT C OF POSTS
3. PLACE W21R SIGN IN EACH SECTION AS SHOWN.
4. RAILS TO BE CONSTRUCTION GRADE DOUGLAS FIR S4S 2" x 6", POSTS TO BE CONSTRUCTION GRADE REDWOOD S4S 6" x 6".



City of Morgan Hill
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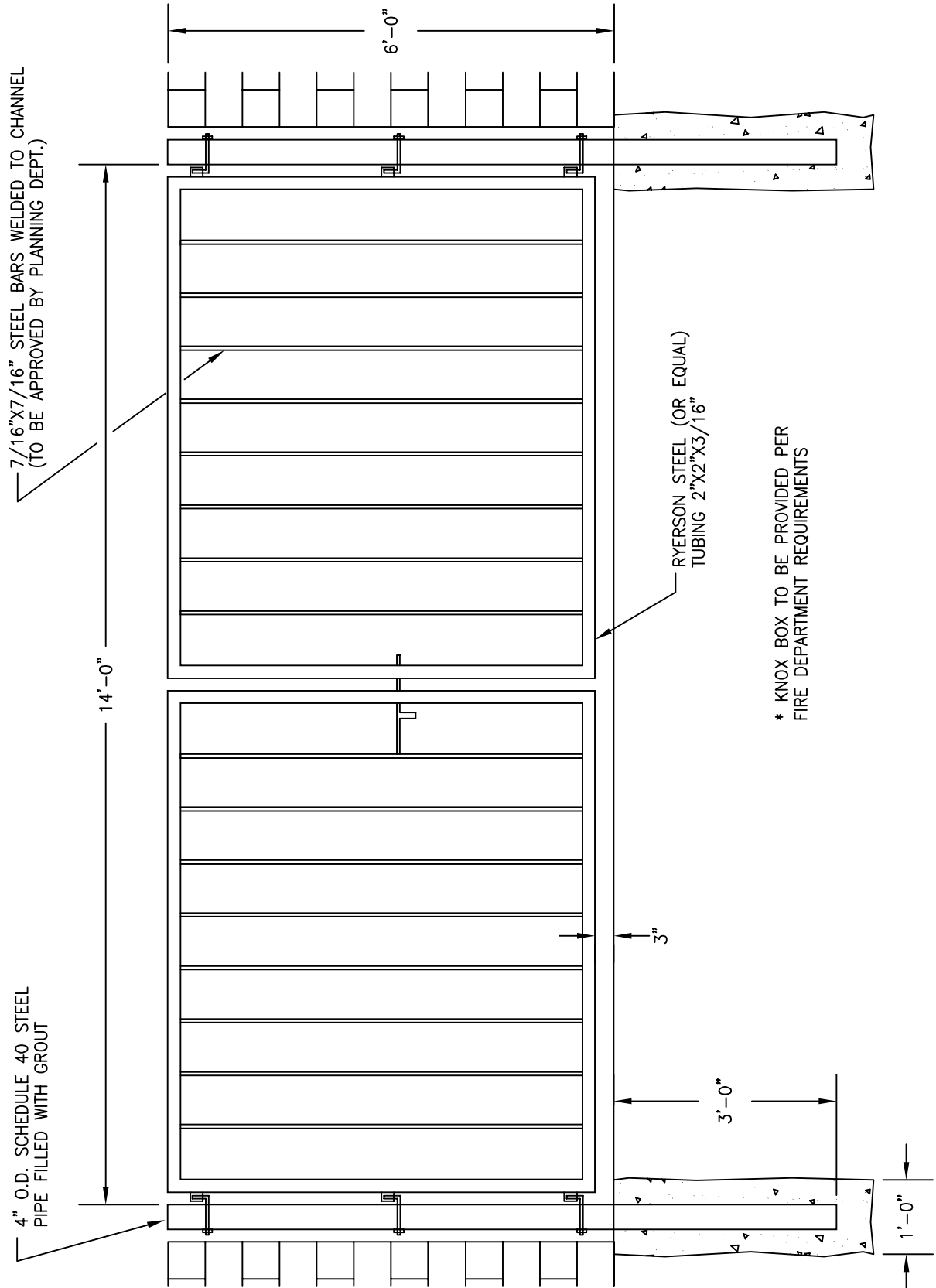
4/1/96
DATE

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STREET BARRICADE

DRAWING
NO.

A-31



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Public Works Department

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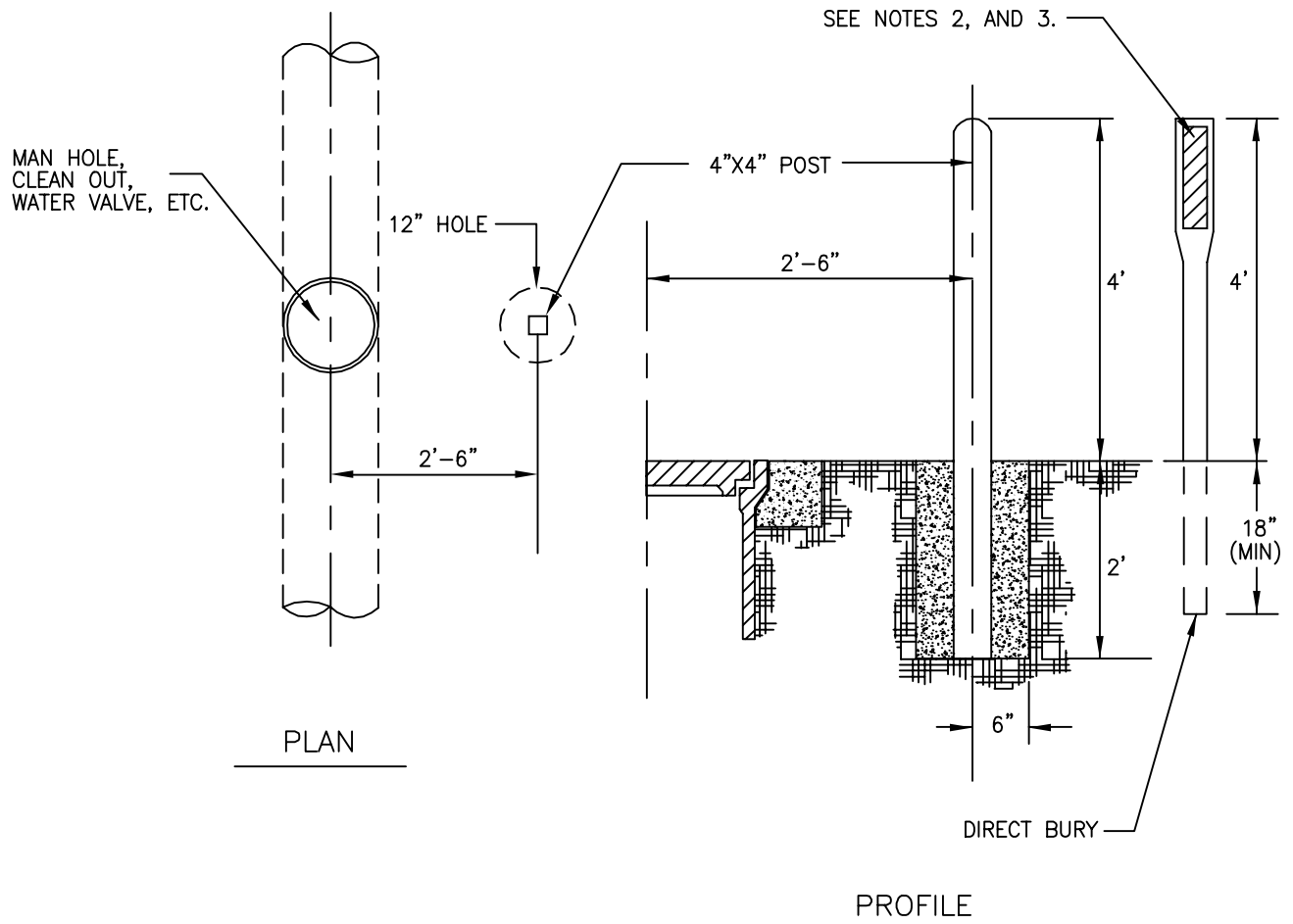
4/1/96
DATE

REVISED

EMERGENCY ACCESS GATE

DRAWING
NO.

A-32



NOTES:

1. MARKER POSTS SHALL BE USED IN UNIMPROVED EASEMENTS AND RIGHT OF WAYS TO LOCATE MANHOLES, WATER VALVES, FLUSHING INLETS, BLOWOFFS, AND OTHER FACILITIES AS REQUIRED BY THE CITY ENGINEER.
2. FIBER-GLASS PADDLE MARKERS.(CALTRANS CLASS I FLEXIBLE POST DELINEATORS MAY BE USED IN LIEU OF WOOD POSTS)
3. LEGEND AND COLOR CODES TO CONFORM WITH USA LOCATE STANDARDS.(GREEN FOR SEWER/STORMDRAIN, AND BLUE FOR WATER)
4. PORTION OF POST SET IN CONCRETE SHALL BE TREATED TO PREVENT ROTTING.



City of Morgan Hill
Public Works Department

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4/1/96
DATE

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MARKER POSTS IN EASEMENTS

DRAWING
NO.

A-33

WATER SECTION

GENERAL

All work shall be done in accordance with the latest editions of the American Water Works Association Standards (AWWA), and the American Society for Testing and Materials (ASTM), except as modified herein.

WATER LINES

All water lines shall be Ductile Iron (Class 50) with Ductile Iron fittings and shall conform to AWWA Standard C100. ALL valves, valve boxes, and covers shall be as indicated in the City of Morgan Hill Standard Details.

A standard gate valve, with a brass blow-off shall be installed at the end of all dead-end lines. A 1" air relief valve must be installed at all high points in the line. Water tight plugs shall be placed at all open ends of pipes when the job site is unattended.

All water services shall be Type "K" copper tubing as shown on Detail W-1.

The concrete Contractor shall stamp a letter "W" on the face of curb directly above the water service.

All fire hydrants shall have companion valves and be of the type indicated on Detail W-8.

All water lines shall be blocked with concrete kick blocks at all changes in direction, all bends, crosses, wyes, tees, reducers, plugs, dead-ends and changes in size. Thrust block or kick block dimensions shall be based on the greater of either 150 PSI min. or 1.5 times the working pressure, while assuming a 2000 PSF soil bearing.

CLEANING AND TESTING

After installation, all pipe lines shall be flushed at 1.0 fps (main line velocity) with clean water. Lines shall be filled slowly and provisions shall be made for venting of the air. Only Department of Public Works Personnel shall open valves to the City's water system. Water lines shall be tested for tightness at the lower end of the line under a hydrostatic pressure of 150 PSI, or 50% above normal operating pressure, whichever is greater. The Contractor shall furnish all necessary equipment, labor and materials needed for the test. The test shall conform to AWWA C600 Section 4 and be conducted for at least 2 hours. See Detail W-IV for allowable leakage of ductile iron pipe.

All water lines shall be tested after completion of the trench backfill and compaction of the final base material, but prior to placement of the final roadway surface.

STERILIZATION

After pressure testing, and before putting into service, all water lines shall be chlorinated by the Contractor in accordance with AWWA C651 or as directed by the City Engineer. Chlorine is furnished by the Contractor and chlorination shall be supervised by a City Inspector.

Chlorination by placement of chlorine tablets in each section of pipe is allowed and shall be in accordance with AWWA C651 and held for a duration of 24 hours.



City of Morgan Hill
Public Works Department

Jim Oakcraft
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4/1/96
DATE

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GENERAL NOTES

DRAWING
NO.

W-I

MICROBIOLOGICAL TESTING

The Contractor shall provide the City with a laboratory report as to the purity of the water before acceptance by the City and placement of the new lines into service. The procedures for such tests shall be as follows:

1. The Contractor shall notify and receive approval for coliform bacteria testing from the Inspector a minimum of 48 hours prior to taking the test, and only after the water line has been hydrostatically tested, chlorinated, final flushed and passed by the Inspector.
2. All sampling and testing for the City of Morgan Hill Water System shall be performed by authorized staff from any laboratory chosen by the Contractor which is certified by the California State Department of Health Services to perform microbiological analysis of drinking water.
3. Authorized staff from the chosen certified laboratory shall take a chlorine residual test prior to taking the coliform test. Chlorine residual shall not exceed 0.3 parts per million, otherwise the coliform test shall not be taken. Flushing shall then continue until the maximum chlorine level is attained.
4. The Contractor shall submit to the Public Works Department the following items:
 - A. Proof of State Department of Health Services certification for the laboratory chosen;
 - B. A copy (Fax OK) of the chain-of-custody for the water sample;
 - C. A copy (Fax OK) of the results of the test with an original "hard copy" to follow.
5. Upon review and approval of the items submitted in item 4., only Department of Public Works personnel shall open the necessary valves to connect the new lines to City's water system. Failure to follow the above requirement shall be considered an "unlawful connection" to the City Water System and may result in the issuing of a citation and fines as specified in Section 13.04 of the Morgan Hill Municipal Code.
6. Connections requiring shut down of the system shall be done between the hours of 12:00 Midnight and 6:00 AM, and only upon coordination with the Department of Public Works.

DUCTILE IRON

(a) Pipe. Ductile iron pipe shall conform to the requirements of AWWA C100. Class 50 pipe shall be the minimum allowable class.

(b) Joints. All ductile iron pipe laid underground shall have push-on, mechanical, or flange joints unless approved otherwise.

(c) Lining and Coating. Water pipes shall be smooth cement lined in accordance with the requirements of AWWA C104. Polyethylene encasement wrap may be required in special soil conditions. Wrapping shall be in accordance with AWWA C105.

(d) Fittings. Fittings shall be cast iron, cement lined and coal tar pitch varnish coated of the Bell and Spigot type and shall conform to ANSI A21.10. Where a specific type of fitting is called for on the Plans, this type shall be used. Fittings shall be all bell, unless indicated otherwise on the Plans. Fitting joints shall be made up with roll-on rubber gaskets. Junctions with other types shall be made with suitable adapters or fittings. Gaskets shall be rubber.



City of Morgan Hill
Public Works Department

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4/1/96
DATE

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GENERAL NOTES

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NO.

W-II

DUCTILE IRON (Continued)

(e) Taps. Taps into ductile iron pipe shall be by machine. Contractor shall perform all service taps as the City does not provide this service. Hot taps to main lines will be allowed only upon approval of the City Engineer. Tapping sleeves may only be used where a water main is at least two nominal sizes larger than the proposed branch. Less than two nominal size differential may be allowed upon City Engineer approval, but will not be allowed on water mains that are not ductile iron.

VALVES

All gate valves shall meet the standards of AWWA C509. Flanged ends shall meet the requirements of ANSI B16.1, class 125. Mechanical joint ends shall meet the requirements of AWWA C111. Interior corrosion prevention coatings shall meet the requirements of AWWA C550. All valves shall be resilient wedge, non-rising stem and double O-ring equipped.

Butterfly valves shall only be used upon the direction or approval of the City Engineer and shall meet the requirements of AWWA C504.

BOLTS AND NUTS

Underground bolts and nuts shall be of low carbon steel in accordance with AWWA C141. Stainless steel bolts and nuts may be required upon direction of the City Engineer.

DEPTH

All water lines shall have a minimum of 36 inches cover at any given time, unless directed otherwise by the City Engineer.

MARKER POSTS

Contractor shall place marker posts adjacent to all air relief valves and blow off assemblies along water mains located in unimproved areas or fields. The posts shall be pressure treated redwood 4"x4"x6', painted white, buried 2'-6", and inscribed with "W/A.V." (for air relief valves) or "B.O." (for blow off assemblies), in 3 inch high carved letters painted blue.



City of Morgan Hill
Public Works Department

Jim Oakcraft
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4/1/96
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GENERAL NOTES

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NO.

W-III

ALLOWABLE LEAKAGE
FOR
DUCTILE IRON PIPE

ALLOWABLE LEAKAGE
(PER 1000 L.F.)

PIPE DIAMETER (inches)	AVG. TEST PRESSURE AT LOWEST POINT IN THE LINE- PSI						
	50	75	100	125	150	200	225
	LEAKAGE- GAL./HR.						
4	0.21	0.26	0.30	0.34	0.37	0.42	0.45
6	0.32	0.39	0.45	0.50	0.55	0.64	0.68
8	0.42	0.52	0.60	0.67	0.74	0.85	0.90
10	0.53	0.65	0.75	0.84	0.92	1.06	1.13
12	0.64	0.78	0.90	1.01	1.10	1.27	1.35
14	0.74	0.91	1.05	1.18	1.29	1.49	1.58
16	0.85	1.04	1.20	1.34	1.47	1.70	1.80
18	0.96	1.17	1.35	1.51	1.66	1.91	2.03
20	1.06	1.30	1.50	1.68	1.84	2.12	2.25
24	1.27	1.56	1.80	2.01	2.21	2.55	2.70

* DATA BASED ON THE FOLLOWING FORMULA:
PER AWWA C600 SEC. 4

$$\frac{(\text{DIA.})(\text{LENGTH})(\sqrt{\text{AVG. TEST PRESSURE}})}{133200} = \text{ALLOWABLE LEAKAGE} \\ (\text{GALLONS / HOUR})$$



City of Morgan Hill
Public Works Department

Jim Oakcraft
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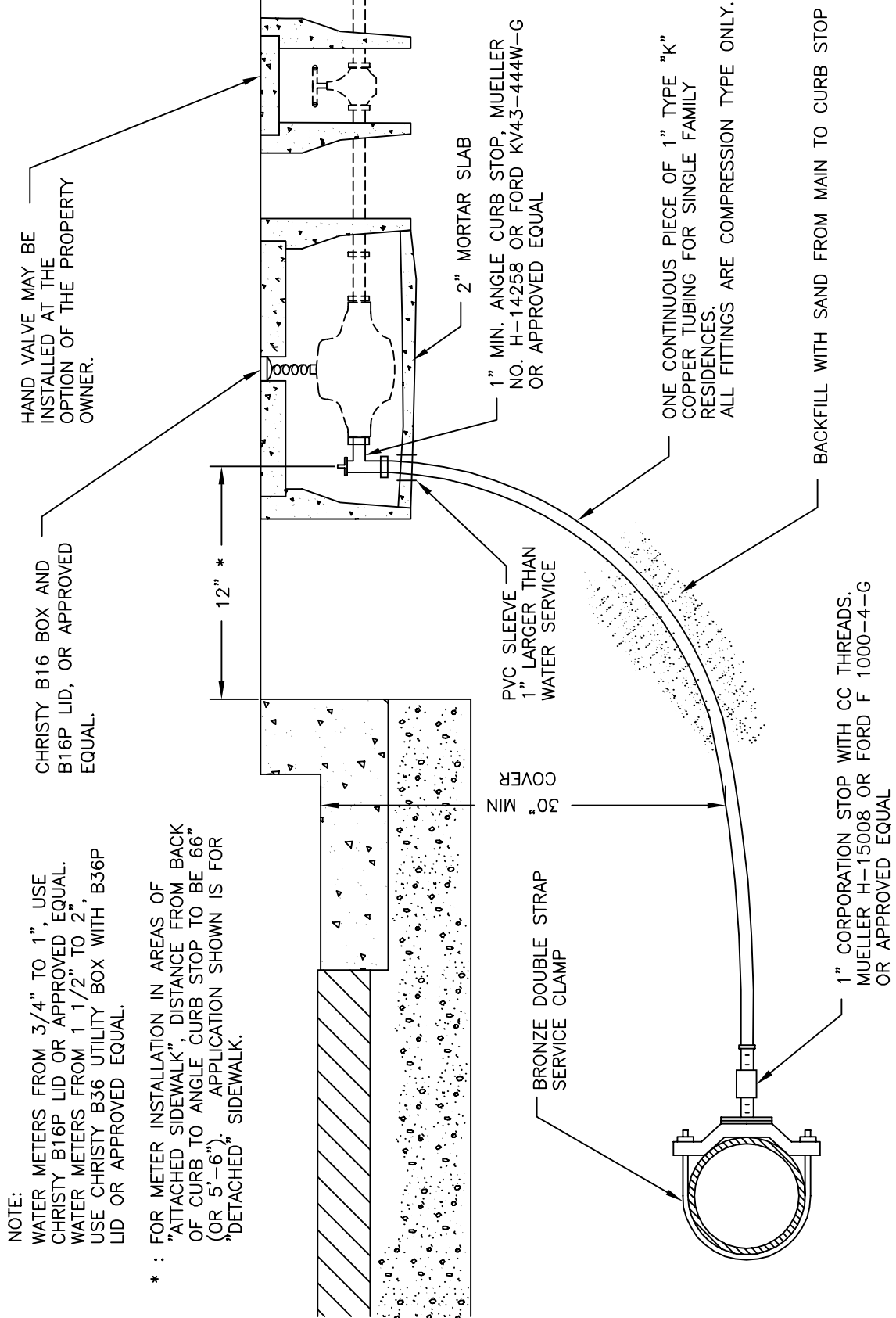
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GENERAL NOTES

DRAWING
NO.

W-IV



City of Morgan Hill
Public Works Department

Jim Cahcraft
CITY ENGINEER

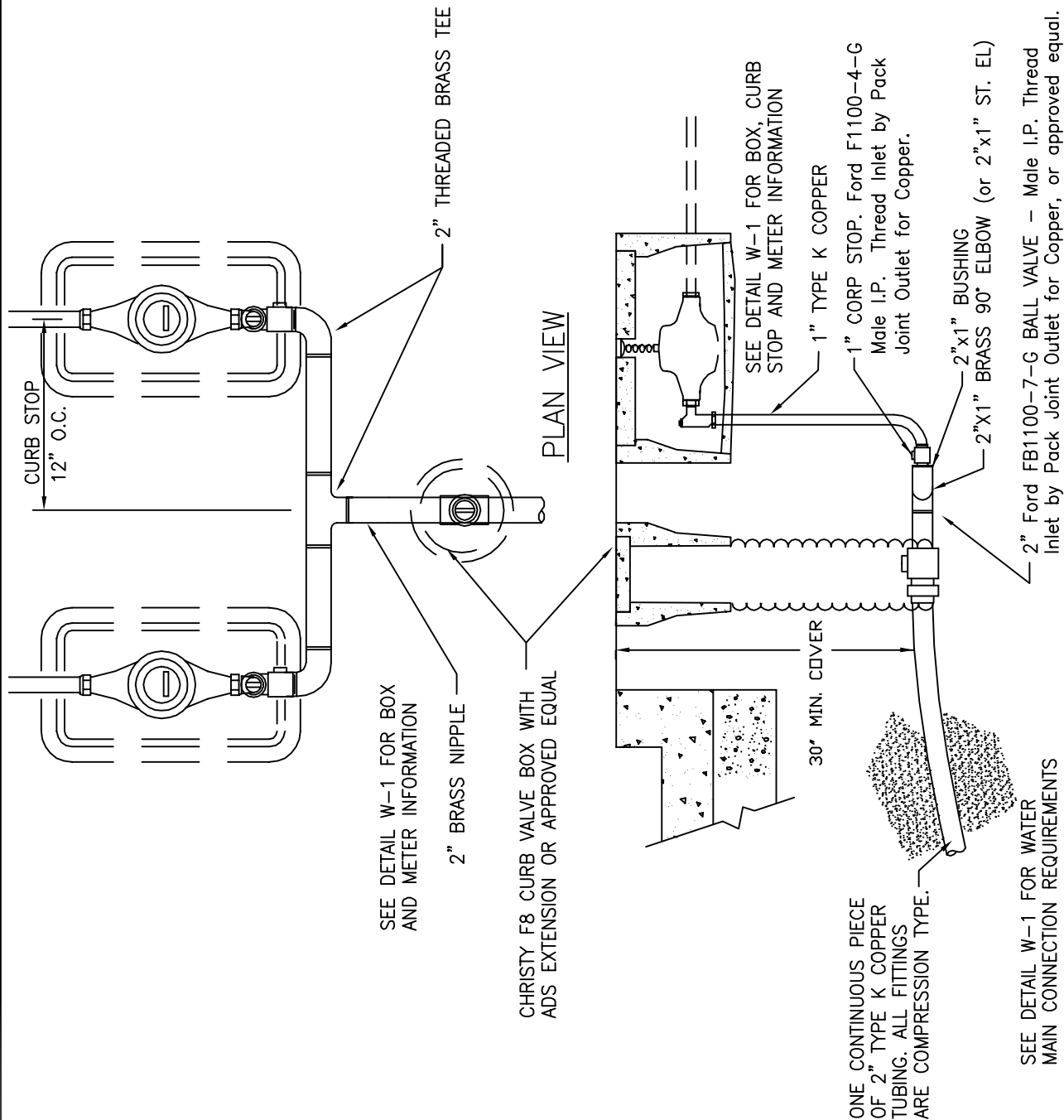
4/1/96
DATE

11/08/00
REVISED

TYPICAL WATER SERVICE INSTALLATION

DRAWING
NO.

W-1



NOTES:

1. STANDARD DETAIL W-1, "RESIDENTIAL WATER SERVICE" IS A PART OF THIS DETAIL, EXCEPT AS MODIFIED HEREIN.
2. THIS WATER SERVICE CONFIGURATION IS ONLY ALLOWED FOR RETROFITTING EXISTING BUILDING AND FACILITY. FOR NEW DEVELOPMENT A 4" (OR GREATER) D.I.P. SERVICE IS REQUIRED (SEE DETAIL W-1B).
3. MAXIMUM NUMBER OF 1" METERS FOR A 2" SERVICE IS 2EA, AS SHOWN. FOR METER CONFIGURATIONS WITH MORE THAN TWO METERS REFER TO DETAIL W-1B.



City of Morgan Hill
Public Works Department

WATER SERVICE MANIFOLD

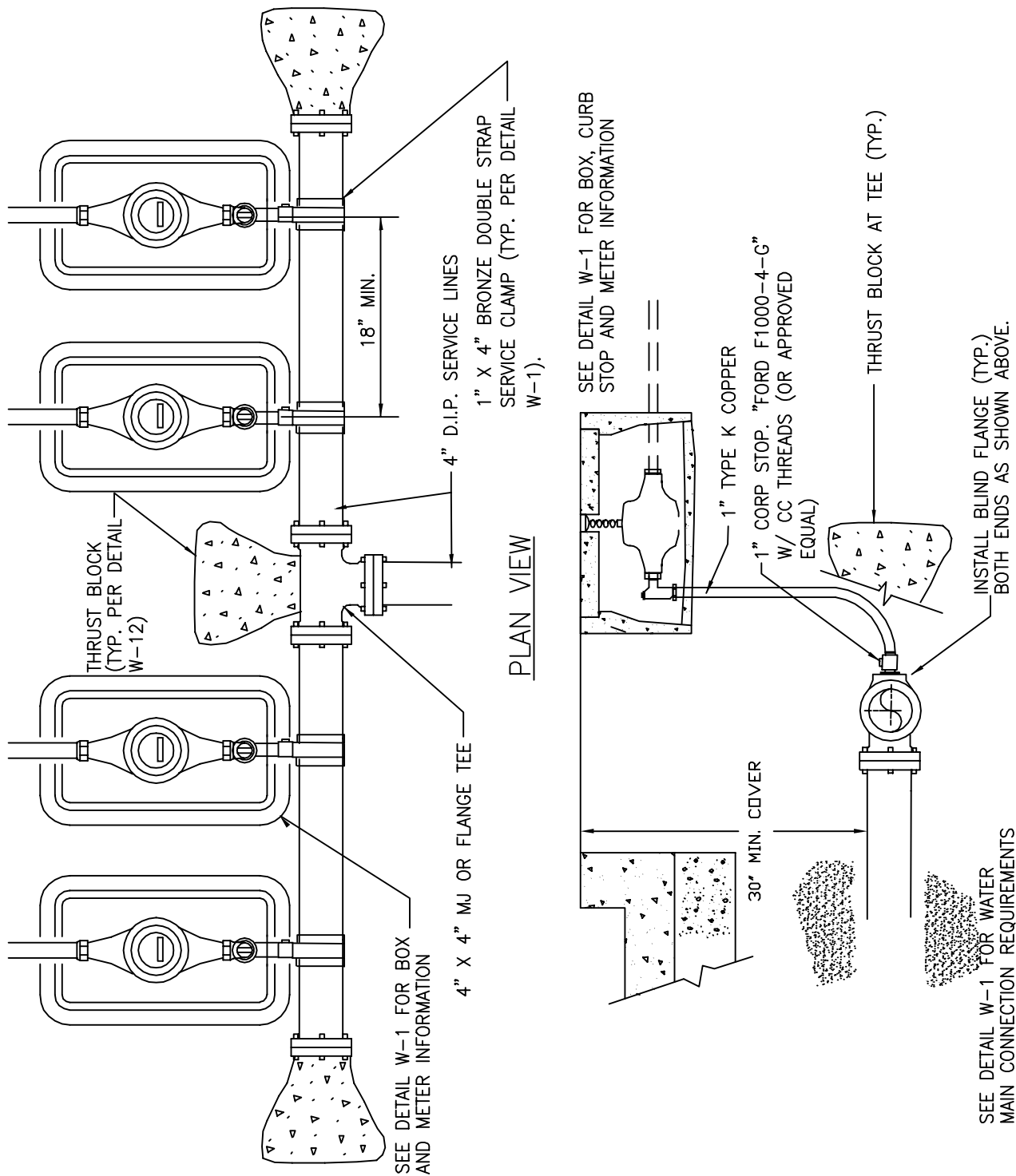
DRAWING
NO.

W-1A

APPROVED

11/08/00
DATE

REVISED



NOTE:

1. STANDARD DETAIL W-1, "RESIDENTIAL WATER SERVICE" IS A PART OF THIS DETAIL, EXCEPT AS MODIFIED HEREIN.
2. ADDITIONAL WATER SERVICES/METERS (MORE THAN 4) SHALL REQUIRE SERVICE LINE GREATER THAN 4".
3. A COMPANION VALVE (EQUAL TO PROPOSED SERVICE SIZE) SHALL BE USED AT CONNECTION OF SERVICE TO MAIN IN STREET (SEE DETAIL W-9 FOR REFERENCE).



City of Morgan Hill
Public Works Department

WATER SERVICE MANIFOLD
FOR 4" OR GREATER
SERVICE LINE

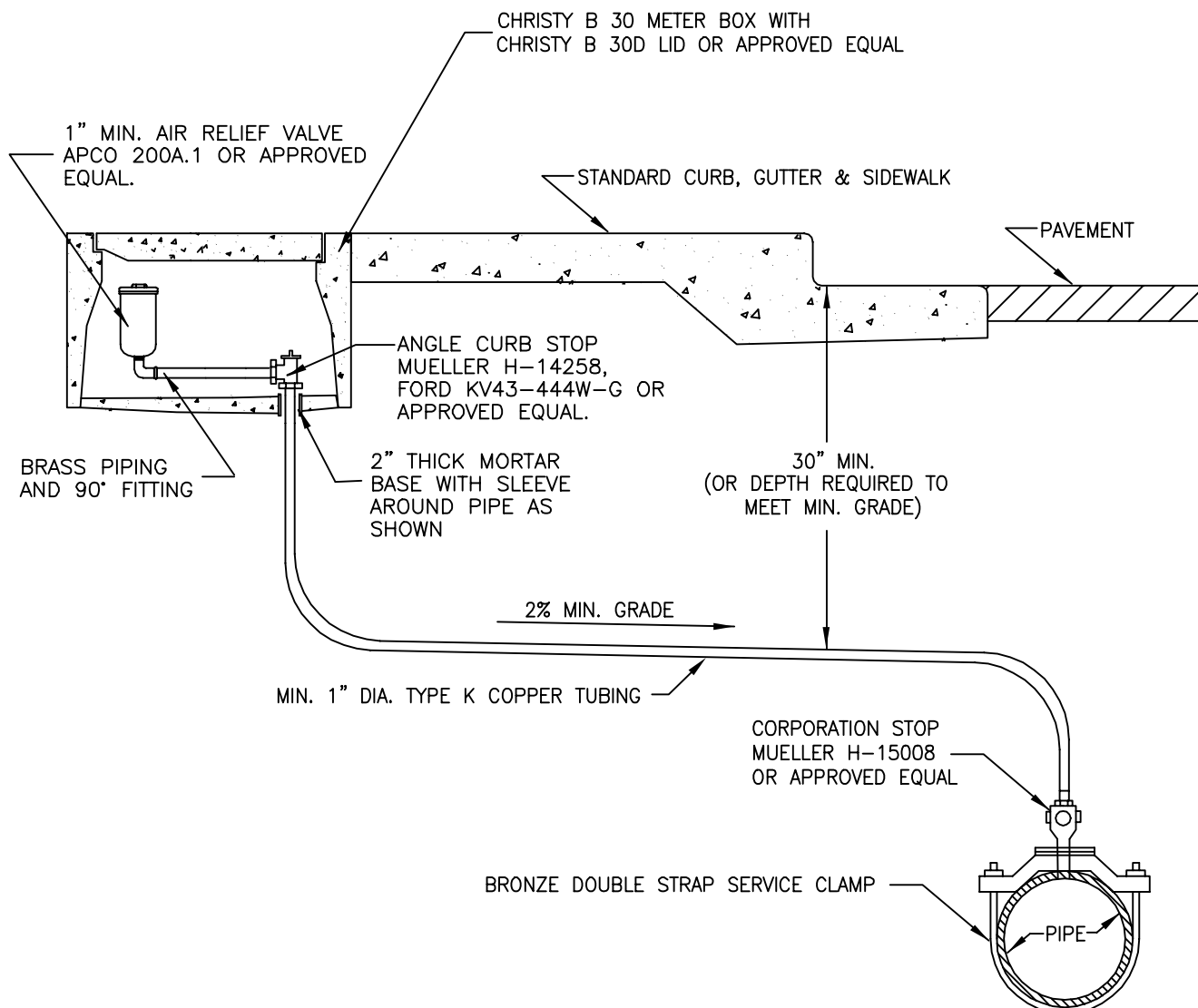
DRAWING
NO.

W-1B

APPROVED

11/08/00
DATE

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NOTES

1. USE SAME DIAMETER OF COPPER PIPE, CORPORATION STOP, AND GATE VALVE ASSEMBLY.



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Public Works Department

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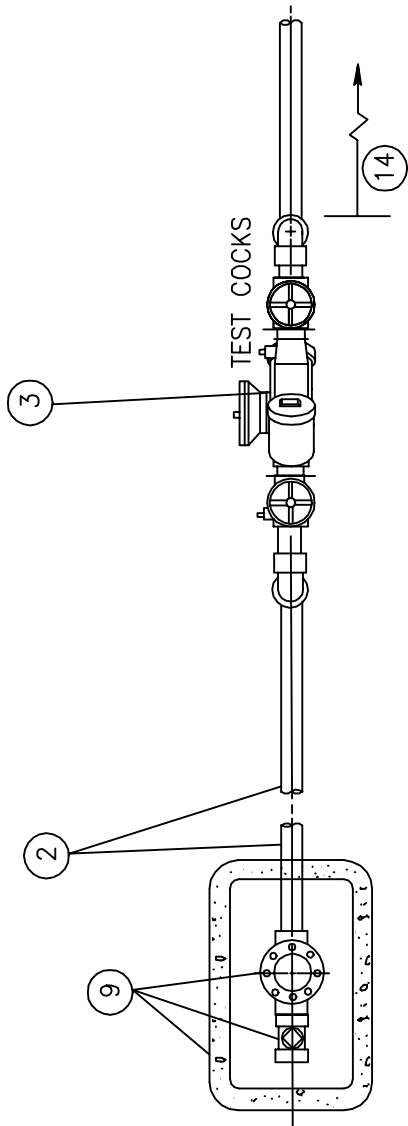
4/1/96
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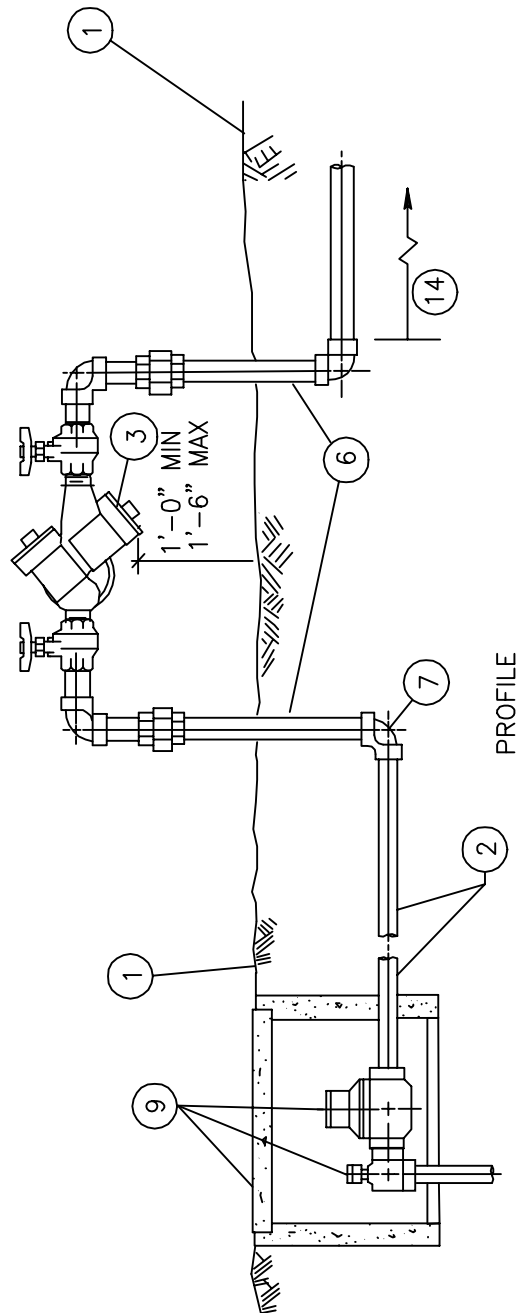
AIR RELIEF VALVE ASSEMBLY

DRAWING
NO.

W-2



PLAN



PROFILE

FOR NOTES AND LEGEND, SEE DETAIL W-6

(FOR SIZES 3/4" TO 2", FEBCO 825Y BACKFLOW UNITS)

NOTE: Piping between backflow device and meter shall be exposed for inspection by Utility Systems Manager



City of Morgan Hill
Public Works Department

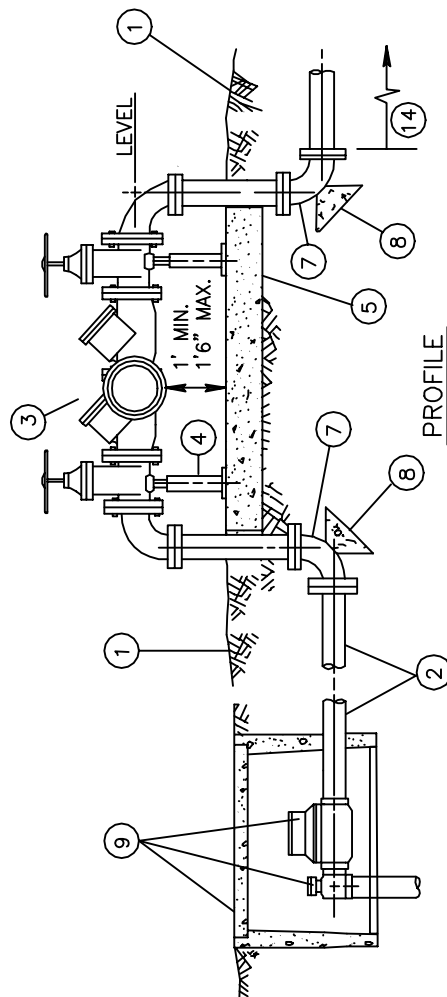
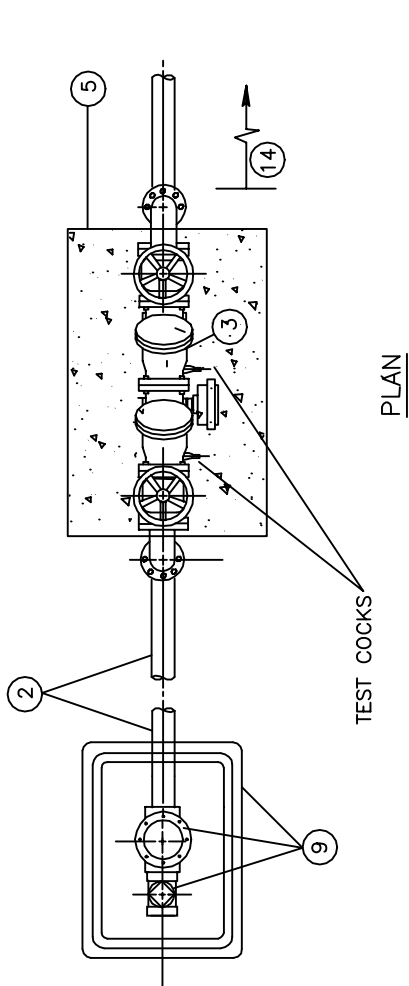
Jim Ashcraft
CITY ENGINEER

4/1/96
DATE

A
REVISED

REDUCED PRESSURE BACKFLOW PREVENTER (SIZES 3/4" TO 2")

DRAWING
NO.
W-3



FOR NOTES AND LEGEND, SEE DETAIL W-6

(FOR SIZES 2 1/2" TO 4" FEBCO 825 YD BACKFLOW UNITS)

NOTE: Piping between backflow device and meter shall be exposed for inspection by Utility Systems Manager



City of Morgan Hill
Public Works Department

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CITY ENGINEER

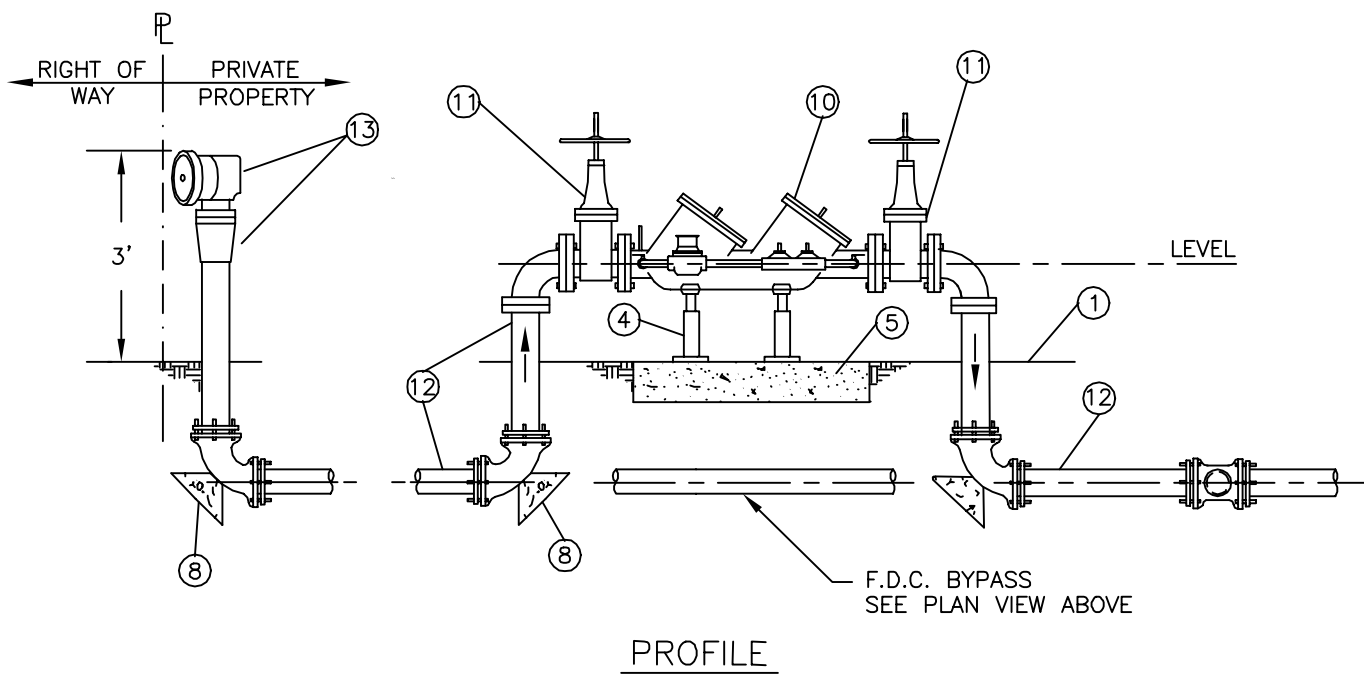
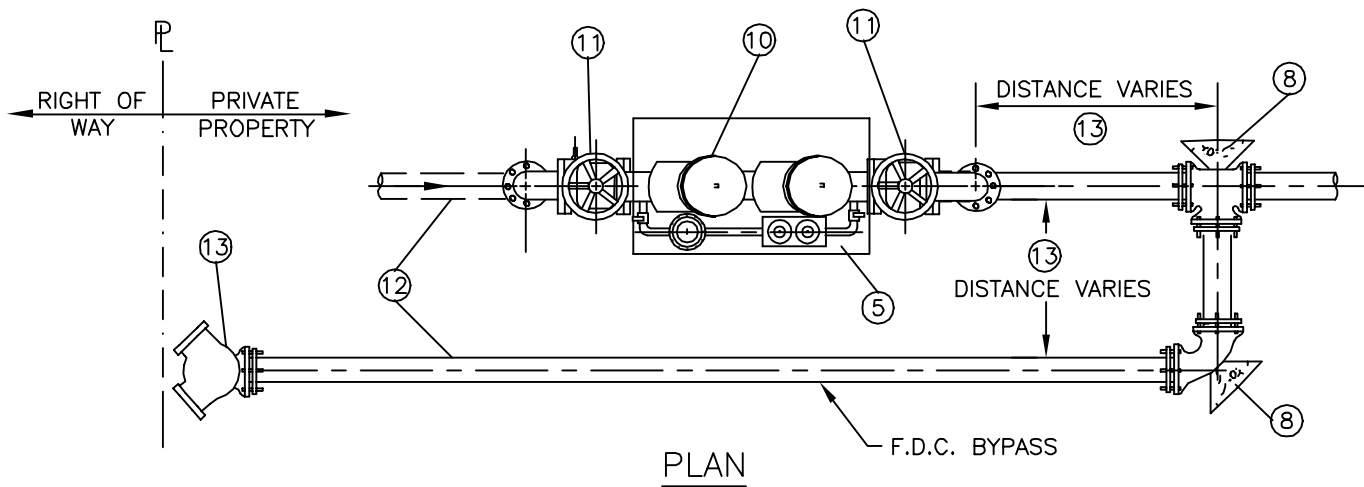
4/1/96
DATE

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REVISED

REDUCED PRESSURE BACKFLOW PREVENTER (SIZES 2-1/2" TO 4")

DRAWING
NO.

W-4



NOTE: FOR NOTES AND LEGEND, SEE DETAIL W-6.

REQUESTED DEVIATIONS FROM THE F.D.C. BYPASS CONFIGURATION (IF BYPASS IS REQUIRED) ABOVE SHALL BE SUBMITTED IN THE FORM OF A PLAN AND PROFILE DRAWING AND MUST BE APPROVED BY THE CITY ENGINEER.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

6/8/00
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DOUBLE DETECTOR CHECK VALVE ASSEMBLY

DRAWING
NO.
W-5

LEGEND

- ① FINISHED GRADE.
- ② SERVICE SIZE GALVANIZED STEEL PIPE FROM WATER METER.
- ③ REDUCED PRESSURE BACKFLOW PREVENTER FEBCO 825Y (OR APPROVED EQUAL) FOR SIZES 3/4" TO 2" AND FEBCO 825 YD (OR APPROVED EQUAL) FOR SIZES 2 1/2" TO 4".
- ④ ADJUSTABLE PIPE SADDLE SUPPORT, GALVANIZED STEEL, SUITABLE FOR SUPPORTING GENERAL PIPING 4" AND LARGER, FROM FLOOR (12" MIN. AND 18" MAX. DISTANCE FROM BOTTOM OF DEVICE TO FLOOR).
- ⑤ 6" CONCRETE ENCLOSURE PAD, SIZE AS SHOWN ON THE PLAN.
- ⑥ SERVICE SIZE GALVANIZED STEEL PIPE RISER WITH A MINIMUM OF TWO (2) UNIONS FOR THREADED CONNECTIONS.
- ⑦ 90° ELBOW, FLANGED OR THREADED.
- ⑧ CONCRETE THRUST BLOCK (SEE DETAIL W-12 FOR MINIMUM THRUST BLOCK DIMENSIONS.)
- ⑨ WATER SERVICE BY OTHERS PER DTL. W-1
- ⑩ DOUBLE DETECTOR CHECK VALVE ASSEMBLY TO BE FEBCO 806 YD OR APPROVED EQUAL
- ⑪ VALVES TO BE MUELLER O.S. & Y.A.-2473-6 OR APPROVED EQUAL, CHAINED AND LOCKED WITH "KNOX BOX" TYPE LOCK, AND TAMPER SWITCH.
- ⑫ ALL PIPE SHALL BE DUCTILE IRON PIPE (D.I.P), AND ALL FITTINGS SHALL BE FLANGE
- ⑬ FIRE DEPARTMENT CONNECTION, F.D.C., SHALL BE 4" (RISER) X 2.5" X 2.5" (SIAMESE CONNECTIONS AND STRAIGHT WAY CHECK VALVE, ("KWIK-CHECK" OR APPROVED EQUAL), WITH METAL CAPS. WHEN THE F.D.C. SERVES ON-SITE FIRE HYDRANTS, THE ASSEMBLY SHALL BE 6" MINIMUM (RISER) x 2.5" x 2.5" x 2.5" x 2.5" (CONNECTIONS). LOCATION OF F.D.C. RISER TO BE NO MORE THAN 40' FROM THE NEAREST FIRE HYDRANT. CONTRACTOR MAY BE REQUIRED TO INSTALL A NEW HYDRANT IF THE ABOVE REQUIREMENT CANNOT BE MET. LOCATION OF BYPASS CONNECTION SHALL BE MADE BEHIND THE THE DEVICE (DOWN-STREAM SIDE).
- ⑭ TYPE OF PIPE FROM THIS POINT INWARD, PER APPROVED PLAN.

NOTES:

- 1. GATE VALVES AND TEST COCKS ARE REQUIRED.
- 2. WATER SUPPLY- NO CONNECTIONS OR TEES WILL BE ALLOWED BETWEEN THE WATER METER AND BACKFLOW UNIT.
- 3. PROTECTION FROM FREEZE DAMAGE MAY BE REQUIRED IN EXPOSED AREAS.
- 4. DEVICE MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE.
- 5. WRAP BURIED GALVANIZED PIPE WITH 10 MIL PVC TAPE.
- 6. ASSEMBLY MUST BE TESTED BY A TESTER APPROVED BY THE CITY OF MORGAN HILL. THE CITY APPROVED TESTER LIST CAN BE OBTAINED BY CALLING 408-776-7333.
- 7. ASSEMBLY MUST BE LOCATED ABOVE GROUND AND DIRECTLY BEHIND WATER METER AS SHOWN ON DTL W-3 ,W-4 AND W-5.
- 8. ADDITIONAL INFORMATION MAY BE OBTAINED FROM M.H. ORDINANCE 647 NEW SERIES, ADOPTED OCT, 1993
- 9. ALL DEVICES MUST BE APPROVED BY THE "FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH".



City of Morgan Hill
Public Works Department

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4/1/96
DATE

6/8/00
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BACKFLOW PREVENTION LEGEND & NOTES

DRAWING
NO.

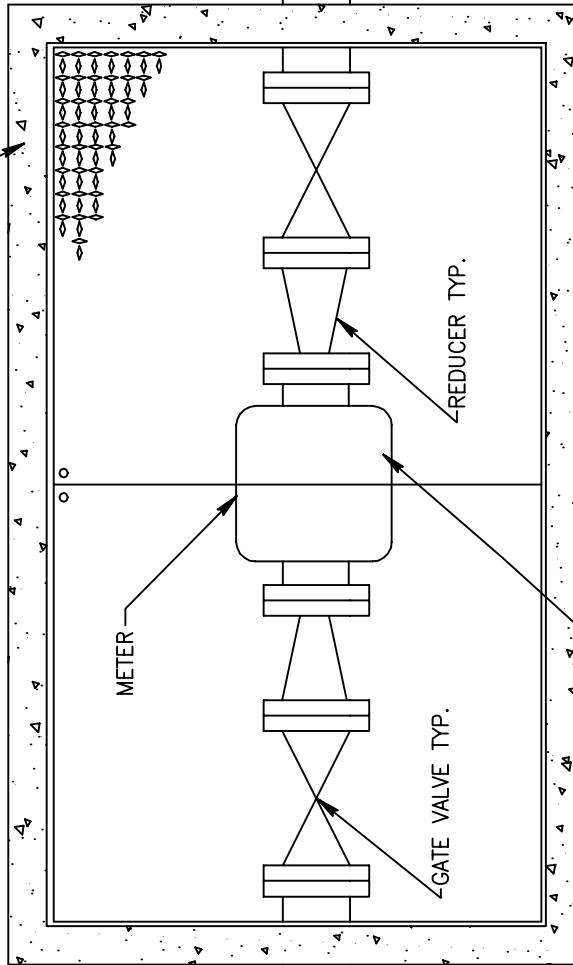
W-6

CHRISTY R37 PIT, SPRING LOADED 2-ELEMENT
CHRISTY 62D80 LID OR APPROVED EQUAL

APPLICABLE BACK FLOW PREVENTION
ASSEMBLY TO BE LOCATED
DIRECTLY BEHIND TEE.

CHRISTY G5 WITH
LOCKING LID OR APPROVED EQUAL

4" MIN. (OR SAME AS SERVICE SIZE)



METER SHALL BE SENSUS SRH SERIES
COMPOUND METER, OR APPROVED EQUAL.



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4/1/96
DATE

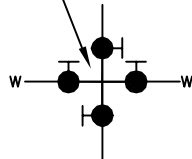
REVISED

METER INSTALLATION & BYPASS (FOR 4" THRU 8" DOMESTIC WATER SERVICES)

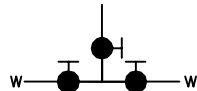
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W-7

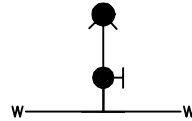
FLANGE FITTINGS
WITH FLANGE BY
MECHANICAL VALVES (TYP)



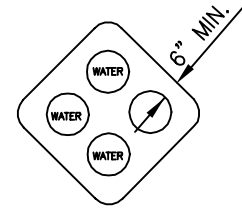
CROSS



TEE



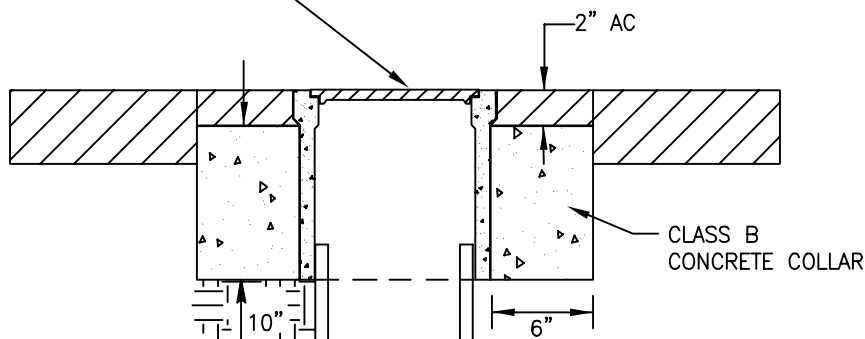
COMPANION VALVE



PAVING AROUND
VALVE CLUSTER

VALVE CONFIGURATIONS

10 1/4" DIA. TRAFFIC
VALVE BOX. CHRISTY G5
OR APPROVED EQUAL.
LID STAMPED "WATER"



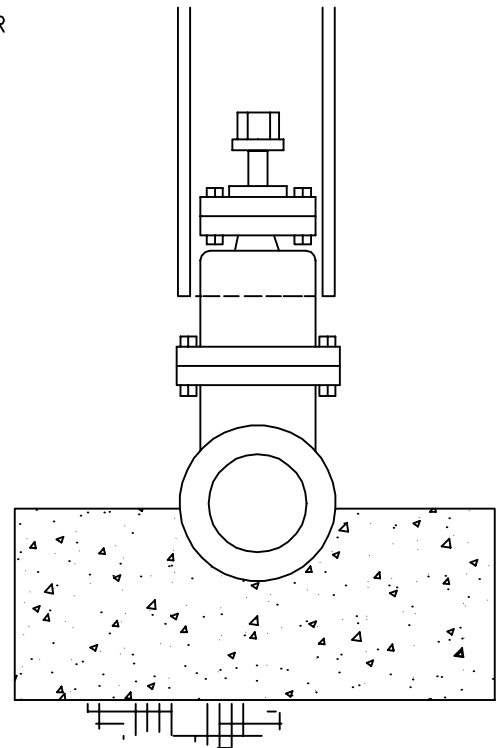
BACKFILL MATERIAL
SHALL BE COMPACTED
TO 95% RELATIVE
COMPACTION

GATE VALVES SHALL BE
MUELLER A-2370-16 OR
APPROVED EQUAL WITH
NON-RISING STEM AND
DOUBLE "O" RING SEAL

CLASS "B" CONCRETE
SUPPORT PAD

1'-0" MIN

1" CLEARANCE FROM BOLTS



VALVES LARGER THAN 12" REQUIRE SPECIAL DETAILS AND SHALL BE APPROVED BY THE CITY ENGINEER.



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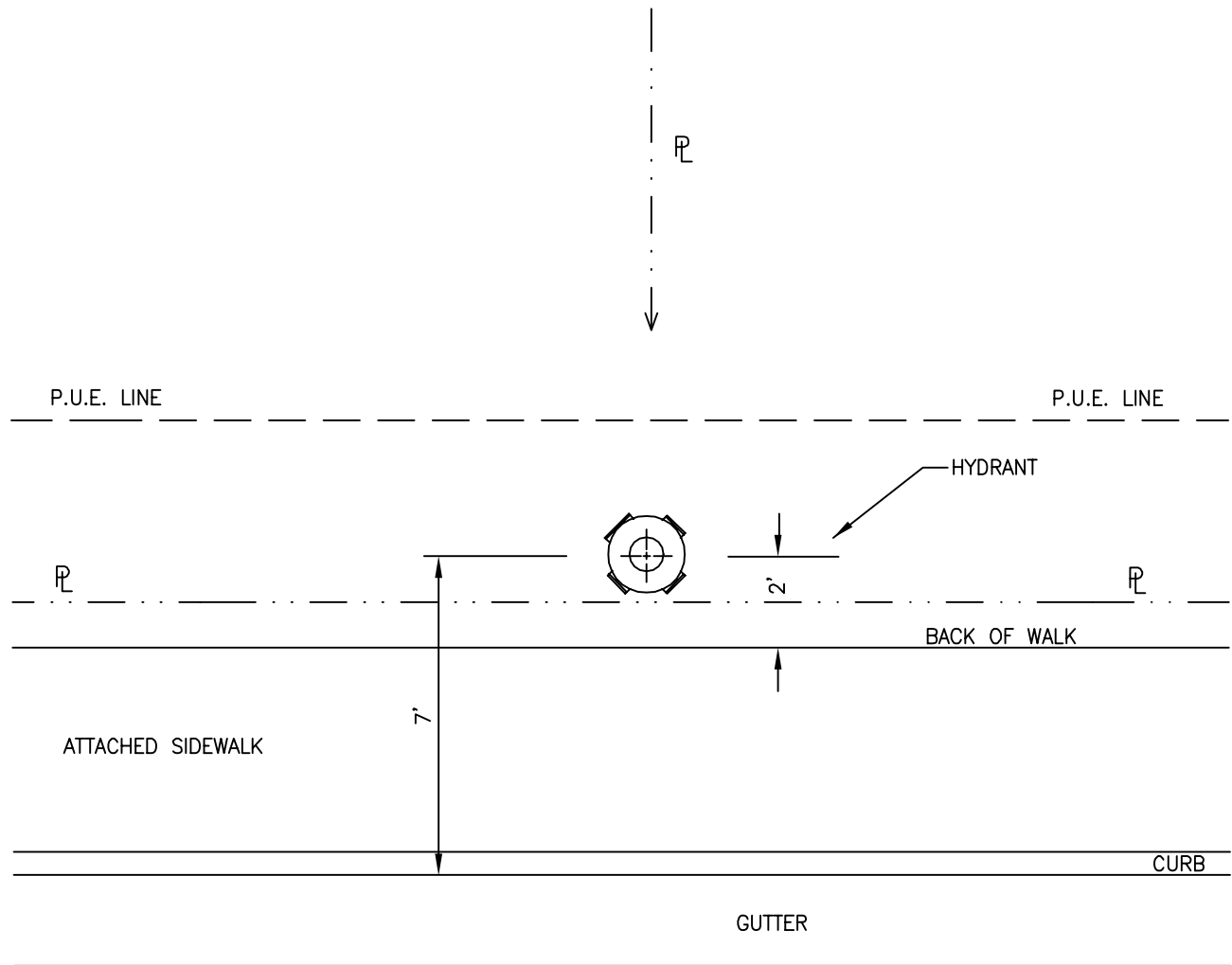
4/1/96
DATE

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TYPICAL VALVE INSTALLATION

DRAWING
NO.

W-8



ATTACHED SIDEWALK
(WITHOUT SIDEWALK MEANDER)

- NOTES:
1. SEE DETAIL W-9 "HYDRANT INSTALLATION AND LOCATION", DETAIL W-8 "TYPICAL VALVE INSTALLATION", AND W-12 "ELBOW THRUST BLOCK".
 2. CENTER OF HYDRANT TO FACE OF CURB SHALL BE 7' FOR THIS SIDEWALK APPLICATION.
 3. CURB SHALL NOT BE PAINTED FOR THIS APPLICATION. PAINTED CURBS ARE NOT REQUIRED FOR RESIDENTIAL APPLICATIONS.
 4. PLACE BLUE PAVEMENT MARKER IN STREET DIRECTLY ACROSS FROM HYDRANT, SEE DETAIL W-11.
 5. FOR ADDITIONAL NOTES SEE DETAIL W-9.



City of Morgan Hill
Public Works Department

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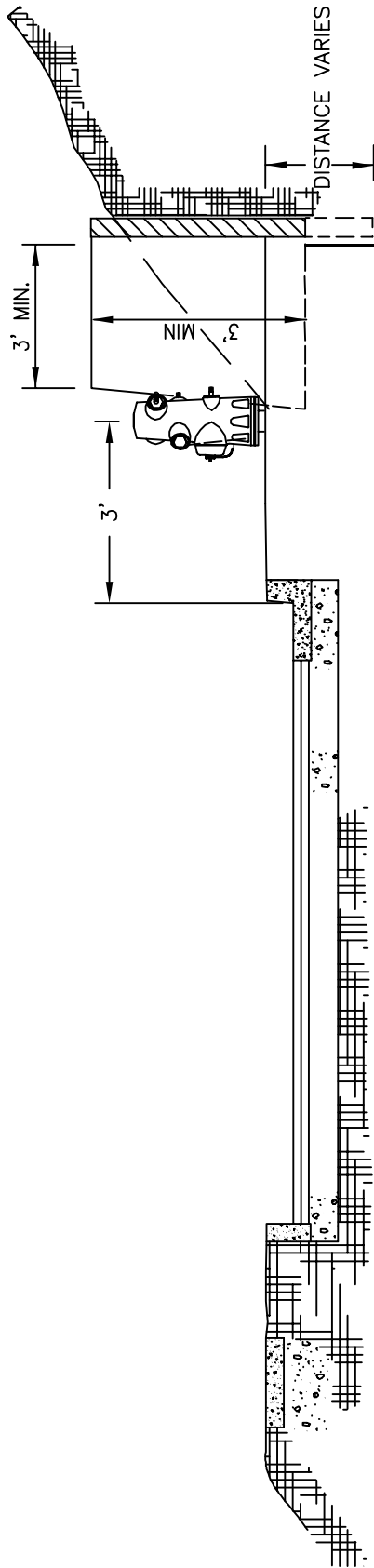
6/8/00
DATE

REVISED

HYDRANT LOCATION
ATTACHED SIDEWALK
(without) SIDEWALK MEANDER

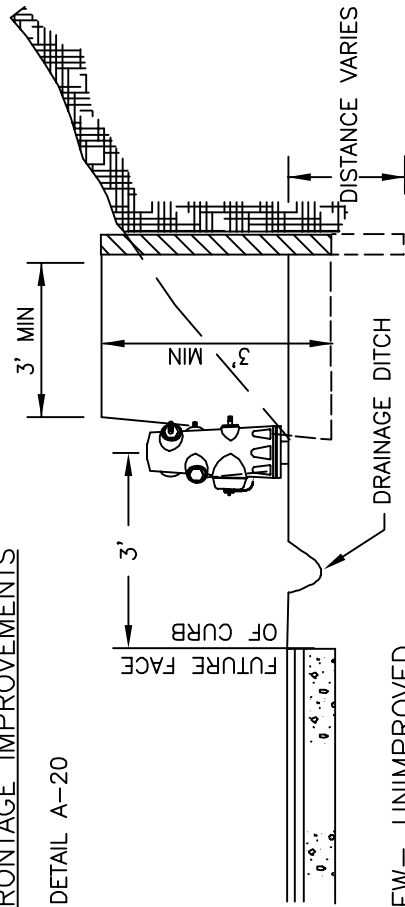
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NO.

W-9A

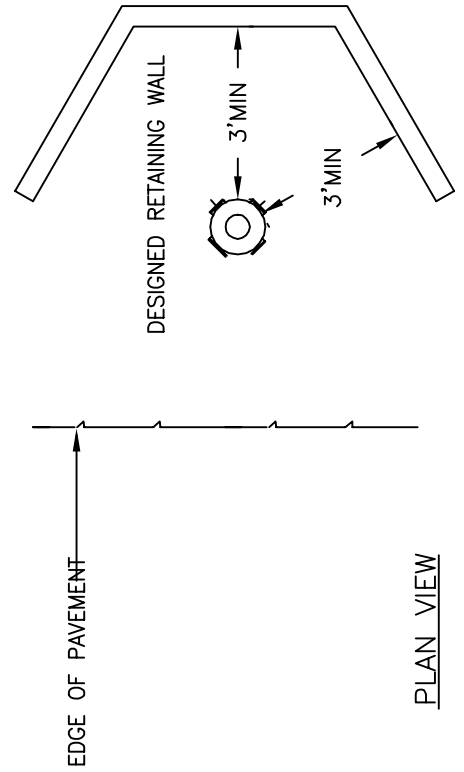


SECTION VIEW— FRONTAGE IMPROVEMENTS

SEE DETAIL A-20



SECTION VIEW— UNIMPROVED



PLAN VIEW



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

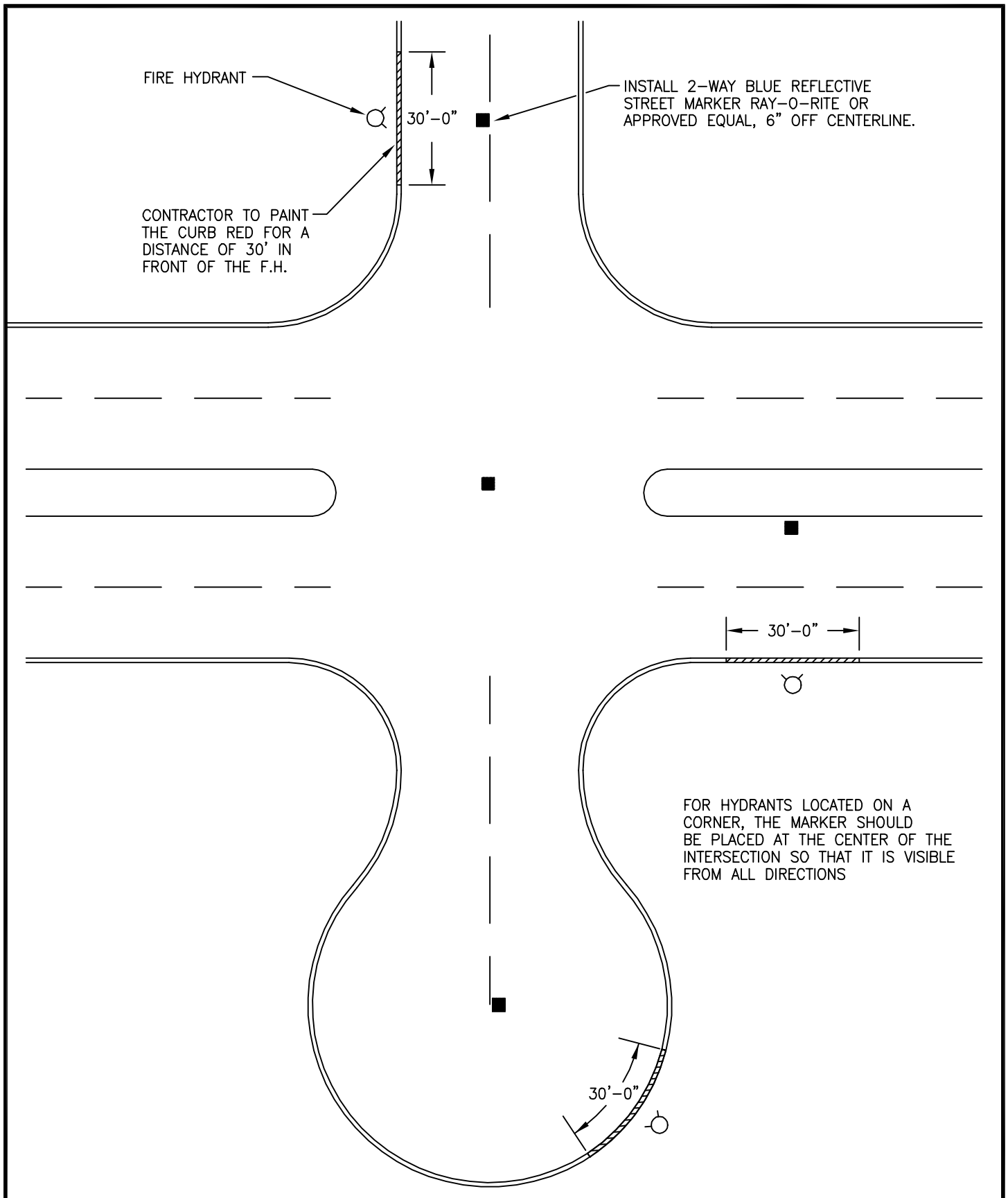
4/1/96
DATE

REVISED

HILLSIDE FIRE HYDRANT LOCATION

DRAWING
NO.

W-10



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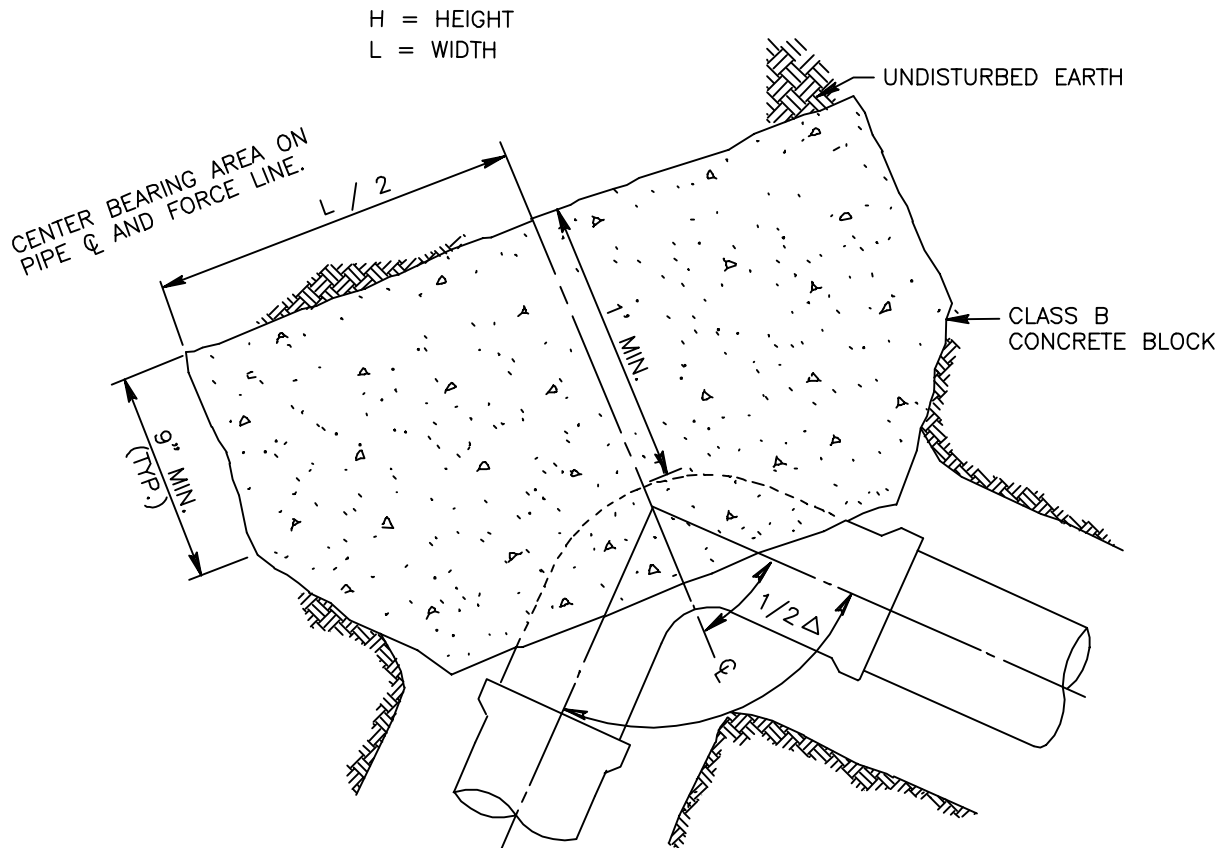
4/1/96
DATE

REvised

FIRE HYDRANT LOCATION MARKER

DRAWING
NO.

W-11



NOTES:

1. CONCRETE SHALL BE KEPT CLEAR OF FLANGES, BOLTS & NUTS.
2. CENTER OF H COINCIDES WITH CENTERLINE OF PIPE

PIPE SIZE	DIMENSIONS - L x H (200 PSI TEST)			
	11 1/4"	22 1/2"	45"	90"
4"-6"	1'0" x 1'0"	1'5" x 1'5"	1'9" x 1'9"	2'3" x 2'3"
8"	1'0" x 1'0"	1'5" x 1'5"	2'0" x 2'0"	2'10" x 2'10"
10"	1'5" x 1'5"	2'0" x 2'0"	2'8" x 2'8"	3'5" x 3'5"
12"	1'9" x 1'9"	2'3" x 2'3"	3'0" x 3'0"	4'2" x 4'2"
14"	1'9" x 1'9"	2'8" x 2'8"	3'6" x 3'6"	4'10" x 4'10"
16"	2'0" x 2'0"	2'10" x 2'10"	4'0" x 4'0"	5'5" x 5'5"
18"	3'0" x 3'0"	4'0" x 4'0"	5'0" x 5'0"	6'6" x 6'6"



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Public Works Department

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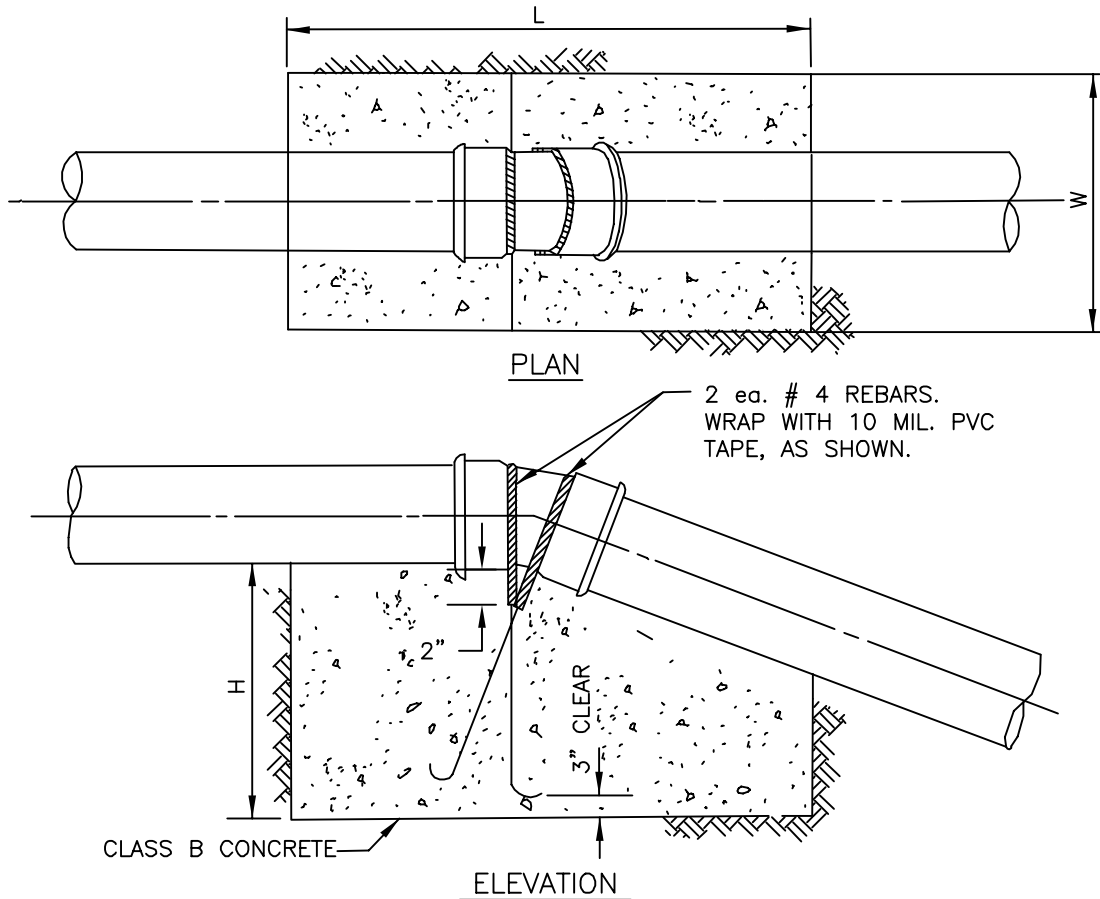
4/1/96
DATE

REVISED

ELBOW THRUST BLOCK,
HORIZONTAL
AND DOWNWARD THRUSTS

DRAWING
NO.

W-12



NOTE: 1. CONCRETE SHALL BE KEPT CLEAR OF FLANGES, NUTS & BOLTS.

DIMENSIONS (150 PSI TEST)

PIPE SIZE	11 1/4° BEND			22 1/2° BEND			45° BEND		
	L	W	H	L	W	H	L	W	H
6"	2'0"	2'0"	1'0"	2'0"	2'0"	2'0"	2'0"	2'0"	2'0"
8"	2'0"	2'0"	1'0"	2'0"	3'0"	2'0"	2'0"	4'0"	2'0"
10"	2'0"	3'0"	2'0"	2'0"	4'0"	2'0"	2'0"	4'0"	3'0"
12"	2'0"	3'0"	2'0"	2'0"	6'0"	2'0"	2'0"	6'6"	3'0"
18"	3'0"	3'0"	3'0"	3'0"	6'0"	3'0"	3'0"	5'0"	5'0"



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Public Works Department

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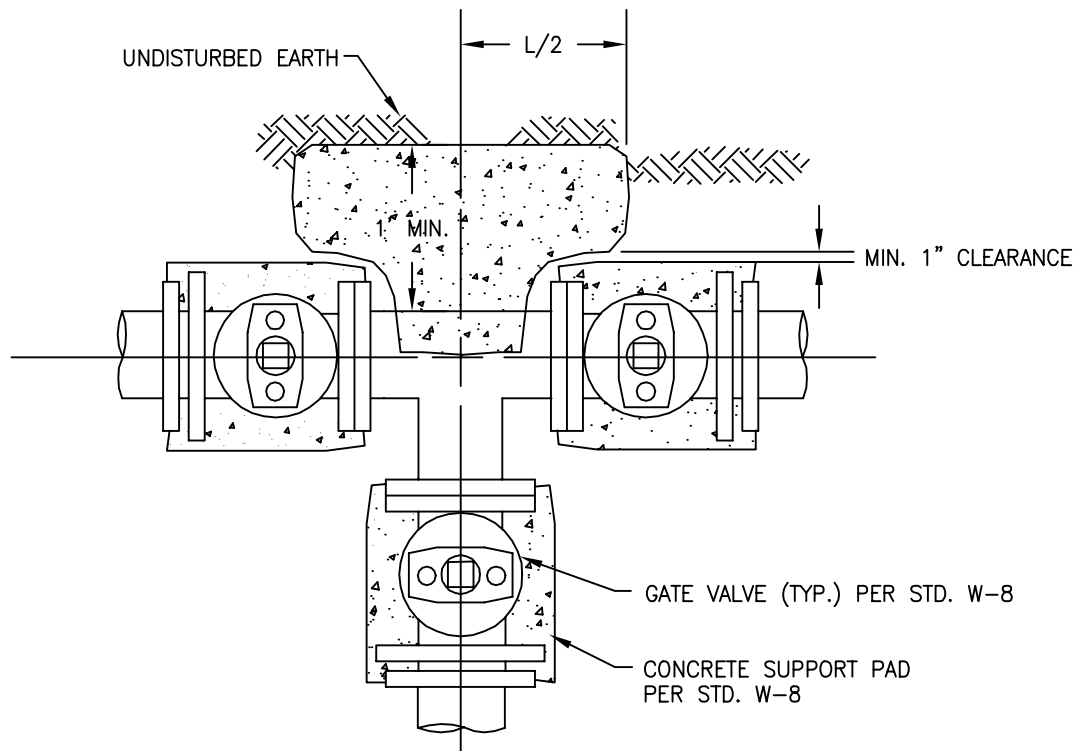
4/1/96
DATE

REVISED

**ELBOW THRUST BLOCK,
UPWARD THRUST**

DRAWING
NO.

W-13



NOTES:

1. CONCRETE SHALL BE KEPT CLEAR OF FLANGES, NUTS & BOLTS.

BLOCKING FOR PIPE TEES		
PIPE SIZE	BEARING (SQ. FT.)	L X H
6"	3	1'-9"X1'-9"
8"	5	2'-3"X2'-3"
10"	9	3'-0"X3'-0"
12"	12	3'-5"X3'-5"
10"	16	4'-0"X4'-0"
12"	21	4'-7"X4'-7"



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4/1/96
DATE

REVISD

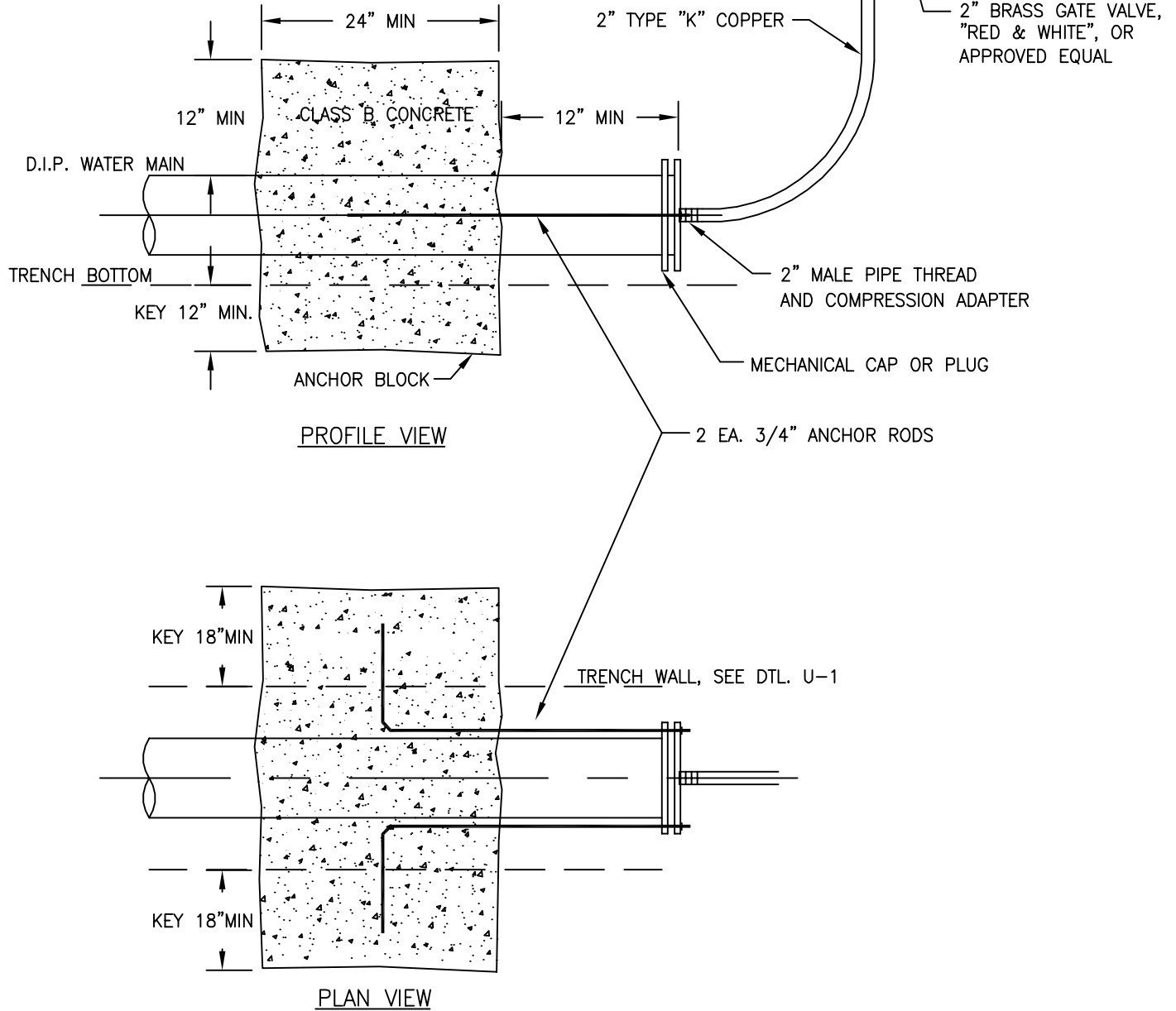
TEE THRUST BLOCK

DRAWING
NO.

W-14

STANDARD CHRISTY B16 WITH
B16D LID, OR APPROVED EQUAL.

NOTE: TRENCH WALL AND TRENCH BOTTOM
SHALL BE KEYED TO ACCEPT
CONCRETE ANCHOR BLOCK.



City of Morgan Hill
Public Works Department

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4/1/96
DATE

REVISED

BLOW OFF

DRAWING
NO.

W-15

SANITARY SEWER

GENERAL

All Sanitary Sewers shall be constructed in accordance with the City of Morgan Hill Standard Details. Materials shall conform to the American Society for Testing and Materials (ASTM), and the American Water Works Association (AWWA), except as modified herein.

SEWER MAINS

Main sewer lines shall be PVC or ABS "composite wall" pipe, PVC solid wall pipe, ABS solid wall pipe, polyurethane lined D.I.P. or PVC C900. Polyurethane D.I.P. (or PVC C900 upon City Engineer approval) shall be used where pipe cover is less than 3 feet but at least 2 feet.

After all testing, backfill and pavement restoration has been completed, the contractor shall flush and clean all sewer lines 24 inches or less in diameter by the "Wayne Ball" method.

TYPES OF SEWER MAIN/LATERALS

POLY-VINYL CHLORIDE (PVC)

Poly-Vinyl Chloride (4" to 12") solid wall pipe, shall conform to ASTM D 3034 (SDR 26) with rubber gasket joints. PVC used for force or shallow mains shall conform to AWWA C900 and installation conform to ASTM D 2774.

ACRYLONITRILE-BUTADIENE-STYRENE (ABS)

Acrylonitrile-Butadiene-Styrene (4" to 12") solid wall pipe, shall conform to ASTM D 2751 (SDR 26).

COMPOSITE WALL PIPE

Double wall, truss type braced, and concrete filled, composite wall pipe, shall conform to ASTM D 2680, SDR 23.5.

DUCTILE IRON PIPE (Polyurethane Lined & Polyethylene Encased)

Polyurethane Lined D.I.P. for force mains or shallow mains, shall be "POLYTHANE Lined Ductile Iron Pipe and Fittings" as manufactured by U.S. Pipe or approved equal. Polyethylene Encasement shall be "GREENSHIELD Polyethylene Film" as manufactured by U.S. Pipe or approved equal, and conform to AWWA C105.

SEWER MAIN/LATERAL INSTALLATION

PVC/ABS solid wall pipe shall be installed per ASTM D2321 using sand as the embedment material. Sand shall conform to CALTRANS Section 19-3.025B.

LATERALS

The underground contractor shall keep an accurate record of all manholes and the distance between them and each wye branch lateral and their direction. Laterals shall be laid on a minimum of 2% grade. The end of the lateral shall be marked as shown in Detail S-2 prior to construction of the curb and gutter. The concrete contractor shall stamp an "S" on the face of curb directly above the lateral.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

A
REVISED

GENERAL NOTES

DRAWING
NO.

S-I

TESTING

After backfill and compaction of the base rock, all sewer mains, laterals and manholes shall be required to pass an air or water leakage test. The contractor shall furnish all equipment, labor and materials needed to perform the test. A "Mandrel Test" may also be required by the City Engineer.

AIR TEST

The pneumatic test method or "air test" is the preferred test for leakage detection of new sewer lines. Contractor shall furnish all equipment, labor and materials necessary to perform the test. Length of line tested at one time shall be limited to the length between adjacent manholes.

Air test procedure shall be as follows: Pressurize the test section to 3.5 PSI, disconnect the compressor from the hose and time for not less than 5 minutes. If at the end of the test period the pressure is less than 3.0 PSI, the section of pipe has failed. If the new main is below ground water level, the Uni-Bell UNI-B-6 "Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe" shall be used.

AIR TEST ON PRESSURE MAIN

Force mains shall hold air pressure that is 50% higher than the normal operating pressure for a period of 3 minutes with pressure drop not to exceed 0.5 psi.

WATER TEST

In lieu of the air test a water test may be performed upon approval of the inspector. Where grades are slight, two or more sections between manholes may be tested at the same time. Where grades are steep, the maximum head on any one section shall not exceed 12 feet. All lines and branches not under test shall be plugged to prohibit overflow.

A section of sewer line prepared as above shall be tested by filling the manhole with water to a height of four feet above the invert at midpoint of the test section, or one foot above the top of pipe in the upstream manhole, whichever is greater. Water should be introduced into the test section at least 6 hours in advance of the official test period to allow pipe and joint material to become saturated with water. All entrapped air shall be removed from the test section prior to performing the test. At the beginning of the test, the height of water in the upper manhole shall be carefully measured from a point on the manhole rim. After a period of 2 hours or less, with the approval of the inspector, the water height shall be measured from the same point on the manhole rim and loss of water during the test period calculated. Allowable leakage shall not exceed 4 gallons per hour per 1000 feet of line per inch of pipe diameter.

Sewer sections showing leakage in excess of the maximum shall be repaired or reconstructed as necessary to reduce leakage to the maximum specified above.

The contractor's attention is directed to the fact that the stipulated maximum leakage shall in no way relieve the contractor of his obligation to correct, stop or otherwise remedy individual leaks in the system due to defective workmanship or material even though such leakage might fall within the maximum.

MANDREL TEST

A Mandrel test may be required by the City Engineer. The Mandrel shall be 4% smaller than the inside diameter of the pipe tested.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

REVISED

GENERAL NOTES

DRAWING
NO.

S-II

TELEVISION INSPECTION

After the leakage test, but prior to paving, a television inspection shall be performed at all locations of newly installed sewer mains throughout the project at contractor's expense. The television inspection shall be made in the presence of the inspector and contractor.

A VHS format tape shall be furnished by the contractor to the City at the initial inspection and upon the completion of any repairs. A written Inspection Log for all video inspections shall accompany each tape. Logs shall accurately measure distances measured from center point of each manhole and shall clearly show the location in relation to the manhole of all points of significance in the sewer line. As a minimum, each Log shall include the location and left/right orientation of all service laterals, location and depth of sags, offset pipes, or any other points of significance. Additionally, each record shall accurately describe the above ground location of the manhole section including the street name, direction traveled (north, south, etc.), direction of flow, adjoining house numbers, and any other landmarks that will clearly and quickly identify the section. All defects and deficiencies discovered in this inspection shall be corrected by the contractor to the satisfaction of the City Engineer and at the contractor's expense.

Measuring devices and depth tolerances for trapped water shall be as follows:

<u>Device</u>	<u>Depth Tolerance</u>
6"	0.08'
8"	0.11'
10"	0.13'
12"	0.16'
15"	0.20'
>15"	10% of pipe area

If the City suspects any damage or breaks in the line, a television inspection may be required within the one year warranty period at the contractor's expense. All defects discovered in this inspection shall be corrected by the contractor at his expense.

MANHOLES

Manhole bases shall be cast in place. Precast bases may be used if approved by the City Engineer. Manholes shall be waterproofed by grouting and/or painting the interior with sodium silicate or other approved waterproofing.



City of Morgan Hill
Public Works Department

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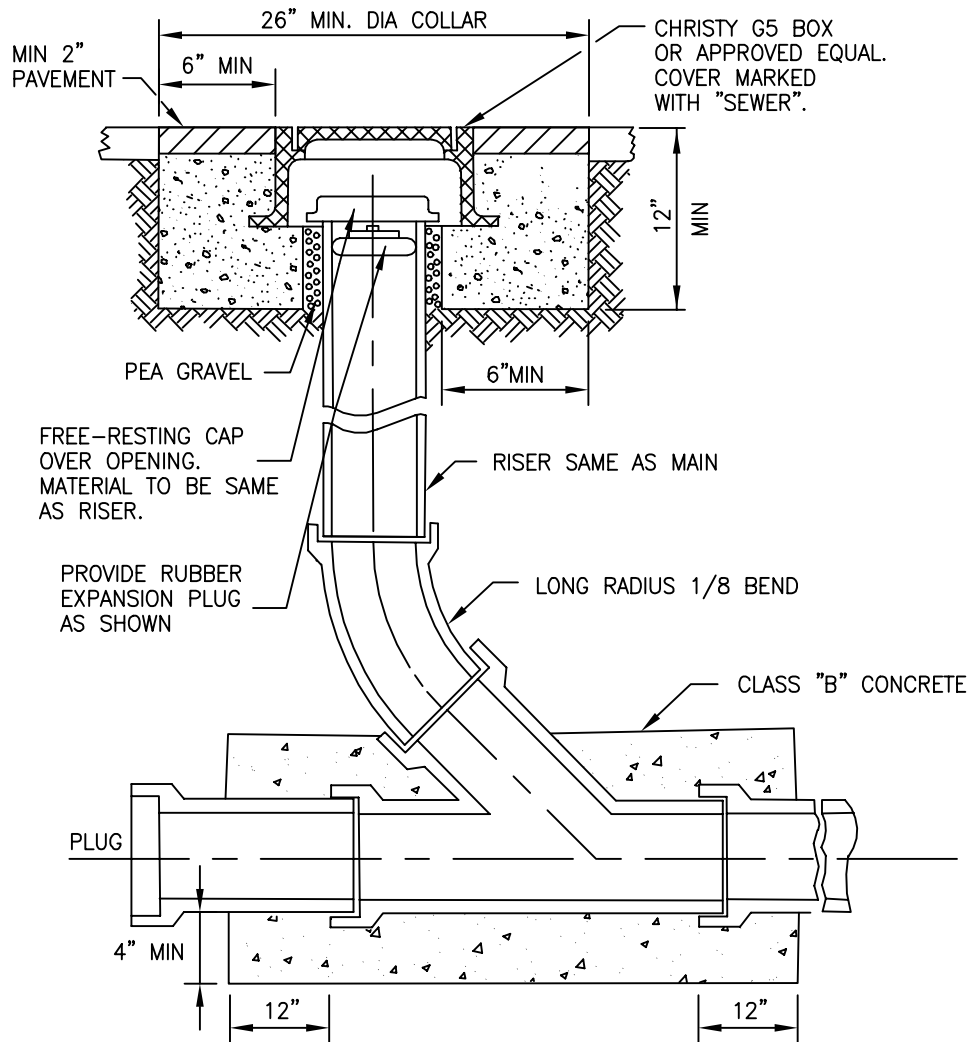
4/1/96
DATE

8/6/98
REVISED

GENERAL NOTES

DRAWING
NO.

S-III



City of Morgan Hill
Public Works Department

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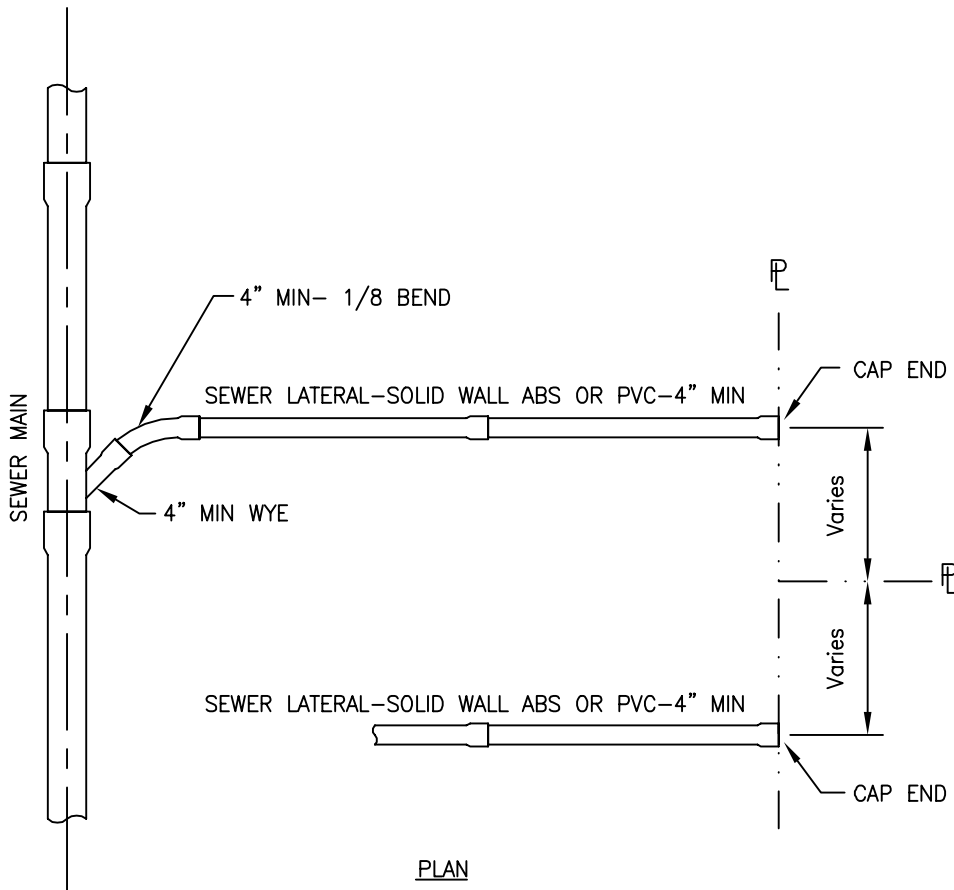
4/1/96
DATE

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SEWER CLEANOUT

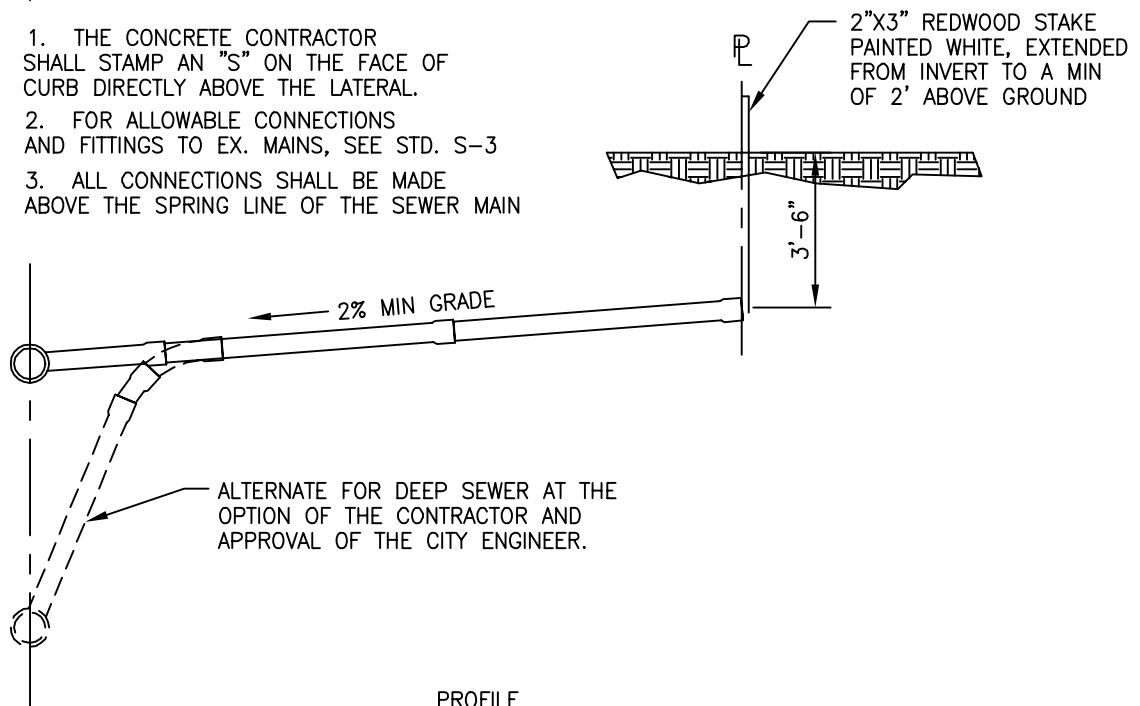
DRAWING
NO.

S-1



PLAN

- NOTE:
1. THE CONCRETE CONTRACTOR SHALL STAMP AN "S" ON THE FACE OF CURB DIRECTLY ABOVE THE LATERAL.
 2. FOR ALLOWABLE CONNECTIONS AND FITTINGS TO EX. MAINS, SEE STD. S-3
 3. ALL CONNECTIONS SHALL BE MADE ABOVE THE SPRING LINE OF THE SEWER MAIN



PROFILE



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

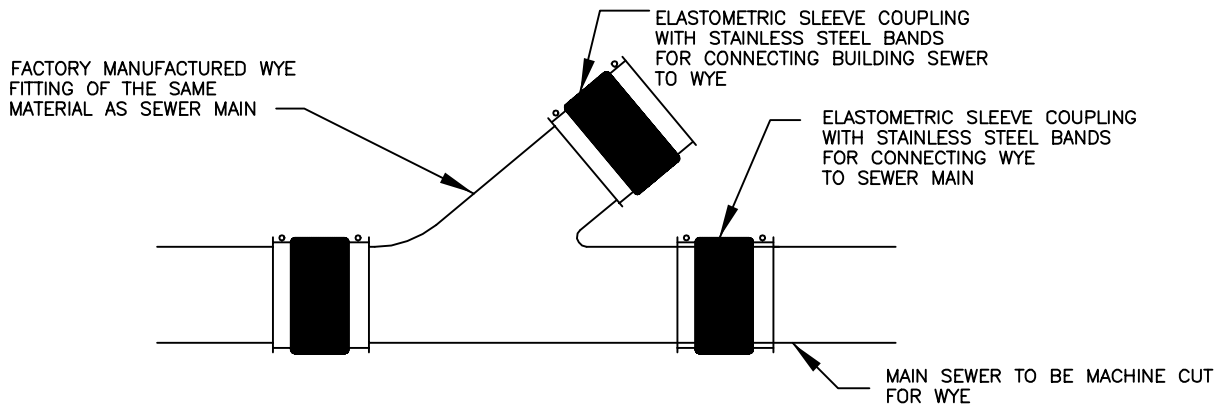
4/1/96
DATE

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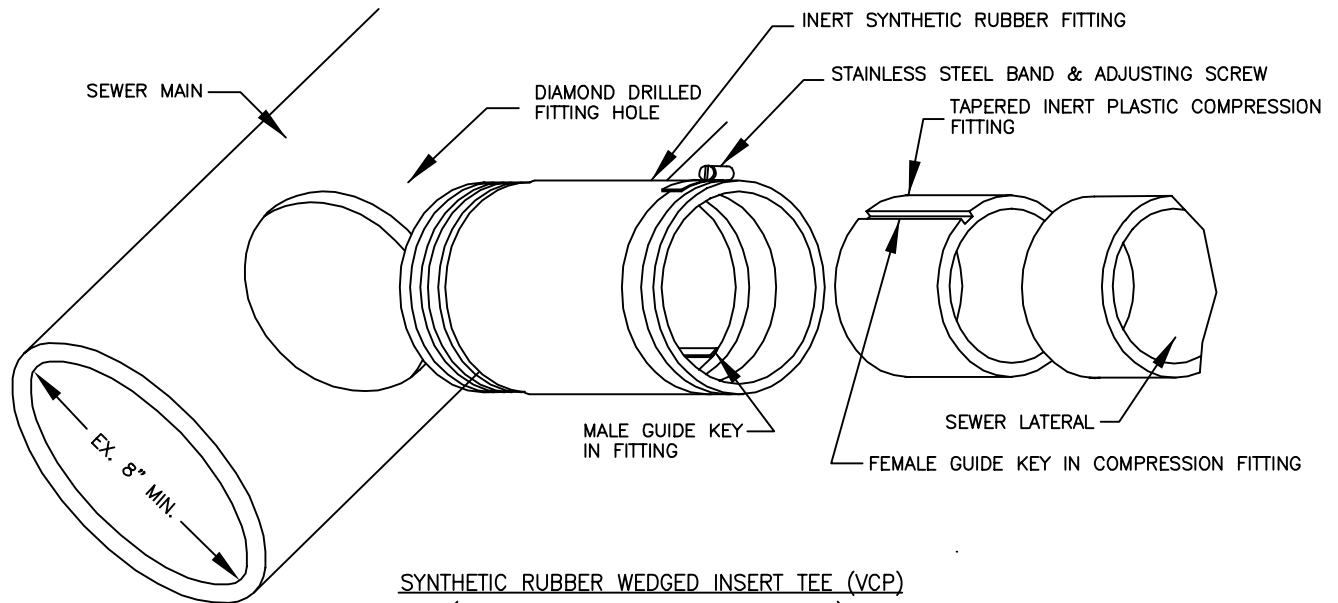
SEWER LATERAL

DRAWING
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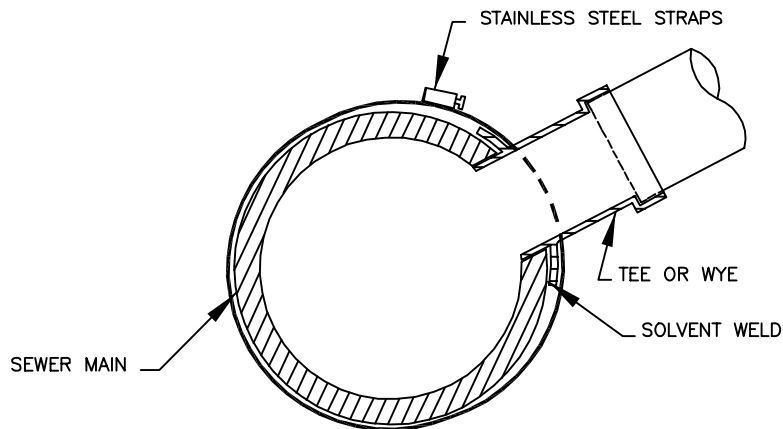
S-2



INSERTION OF MANUFACTURED WYE (VCP)



SYNTHETIC RUBBER WEDGED INSERT TEE (VCP)
(MIN. DIFFERENTIAL OF TWO SIZES REQUIRED)



TEE OR WYE TAP (PVC OR ABS)
(SOLVENT WELDED FITTINGS)



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

REVISED

SIDE SEWER/LATERAL FITTINGS TO EXISTING MAINS

DRAWING
NO.

S-3



1" CONCRETE COLLAR IS TO AVOID SUBGRADE COLLAR)

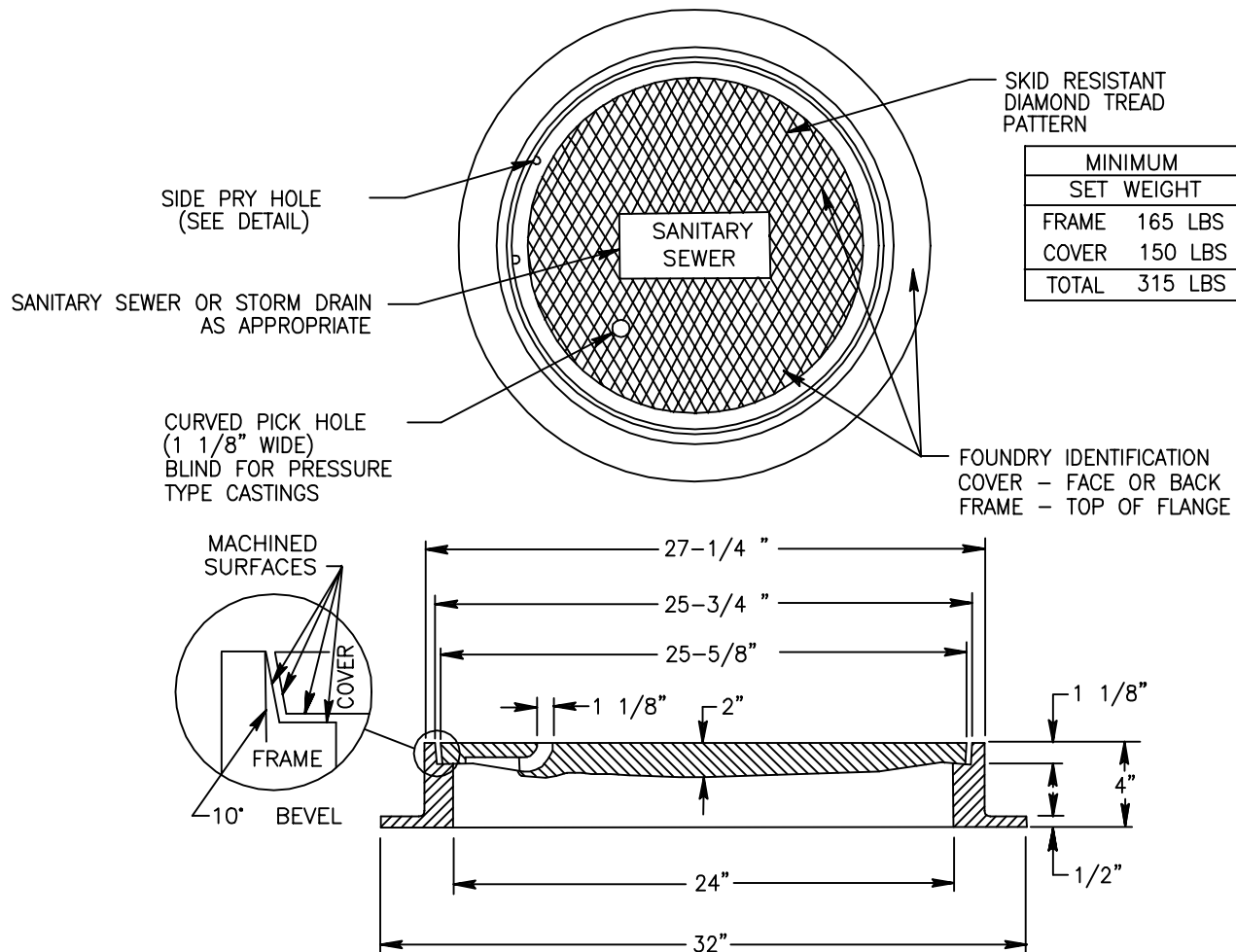
1'-8" (SEE NOTE 1)

6" THRU 36" DIA.

- SLOPE = 1" PER FOOT MIN. (.5' MAX.)
GROUT AND SHAPE TO SMOOTH FINISH.

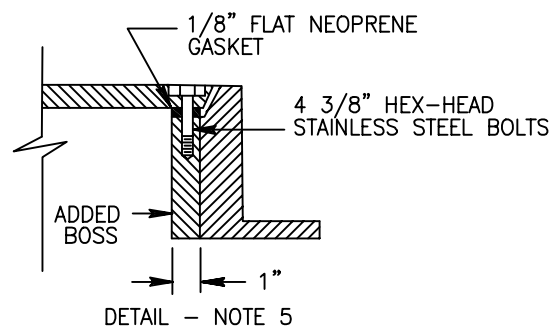
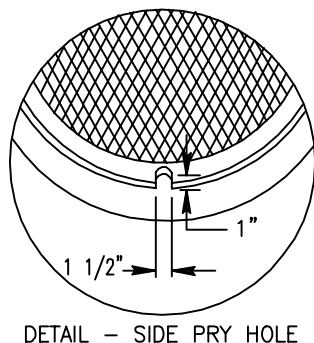
5. CONCENTRIC MANHOLES MAY BE USED WHEN A UTILITY CONFLICT OCCURS OR WHEN APPROVED BY THE CITY ENGINEER.





NOTES:

1. MANHOLE FRAME AND COVER SHALL BE SOUTH BAY FOUNDRY SBF-1254 OR AN APPROVED EQUAL WHICH MEETS MINIMUM SET WEIGHT.
2. CASTING SHALL BE DIPPED IN ASPHALT PAINT.
3. MINIMUM WEIGHT OF SET 290 LBS.
4. CAST IRON SHALL CONFORM TO ASTM A 48 CLASS 35B.
5. WHERE BOLT DOWN COVERS ARE CALLED FOR ON THE PLANS, ADD BOSSES TO FRAME (4 EA. @ 90°), SEE DETAIL.
6. MANUFACTURER SHALL CERTIFY MATERIAL, WEIGHT AND DIMENSIONS.
7. MANUFACTURER TO CERTIFY THAT FRAME AND COVER MEET ALL LOAD REQUIREMENTS FOR H-20 HIGHWAY LOADING.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

6/8/00
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STANDARD MANHOLE FRAME & COVER

DRAWING
NO.
S-5

STORM DRAIN SECTION

All Storm Drains shall be constructed in accordance with the City of Morgan Hill Standard Details and designed in accordance with the City of Morgan Hill Design Standards, the Standard Specifications, State of California, Department of Transportation, Caltrans (CSS), and the Santa Clara Valley Water District (SCVWD). Materials shall conform to the American Society for Testing and Materials (ASTM), and the American National Standards Institute (ANSI), except as modified herein.

Main line storm drains shall be Class 3 R.C.P., or C.M.P. (upon approval of the City Engineer), and have no less than 30" cover from finished grade. Laterals shall be Class 3 R.C.P. (15" min.), and have no less than 24" cover from finished grade.

All R.C.P. shall be Class 3, bell and spigot, rubber gasketed, push on pipe. Tongue and groove, mortared joint pipe will not be allowed. Class 4 or Class 5 R.C.P. may be required when loading conditions vary.

After all backfill, testing and pavement restoration has been completed, the contractor shall clean and flush all storm drain mains, laterals, inlets and man holes, prior to acceptance.

TESTING (If required by the City Engineer)

If the City suspects any damage or breaks in the line, the storm drain may be subject to television inspection and/or required to pass a leakage test. The contractor shall furnish all labor, equipment, and materials needed to perform the test. A televised inspection may be required within the one year warranty period at the contractor's expense. All defects discovered in this inspection shall be corrected by the contractor at his expense.

If the City requires a leakage test on said line, the test shall be a hydrostatic water test in accordance with CSS Section 65-1.08.

TYPES OF STORM DRAIN MAIN

REINFORCED CONCRETE PIPE (R.C.P.)

Reinforced Concrete Pipe (15" Min.), shall be in conformance with ASTM C 76 Class 3 and CSS Section 65, bell and spigot ends with rubber gasket joints.

CORRUGATED METAL PIPE (C.M.P.)

Corrugated Metal Pipe shall be in accordance with CSS Section 66 and used only upon City Engineer approval.

CAST-IN-PLACE-PIPE (C.I.P.P.)

Cast-In-Place-Pipe (concrete) shall be in accordance with CSS Section 63 and used only upon City Engineer approval.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

REVISED

GENERAL NOTES

DRAWING
NO.

SD-I

MANHOLES

Manhole bases shall be cast in place. Precast bases may be used if approved by the City Engineer. Manholes shall be waterproofed by grouting and/or painting the interior with sodium silicate or other approved waterproofing.

INLETS

Unreinforced inlets shall be cast in place with class "A" concrete. Pre-cast inlet structures may be used subject to approval of the City Engineer. All fabricated steel shall be hot dipped galvanized after fabrication.

WORK IN DRAINAGE DISTRICT RIGHT OF WAY

All rip-rap structures, cut off walls, out fall structures, inlet structures, etc., shall be done in accordance with all applicable standards of the Santa Clara Valley Water District (SCVWD). An encroachment permit must be obtained from SCVWD prior to commencement of any work.

Contractor must provide a Letter of Acceptance, or a copy of a signed-off encroachment permit from SCVWD prior to the acceptance of the entire project.

Permits from other state and local agencies may be required.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

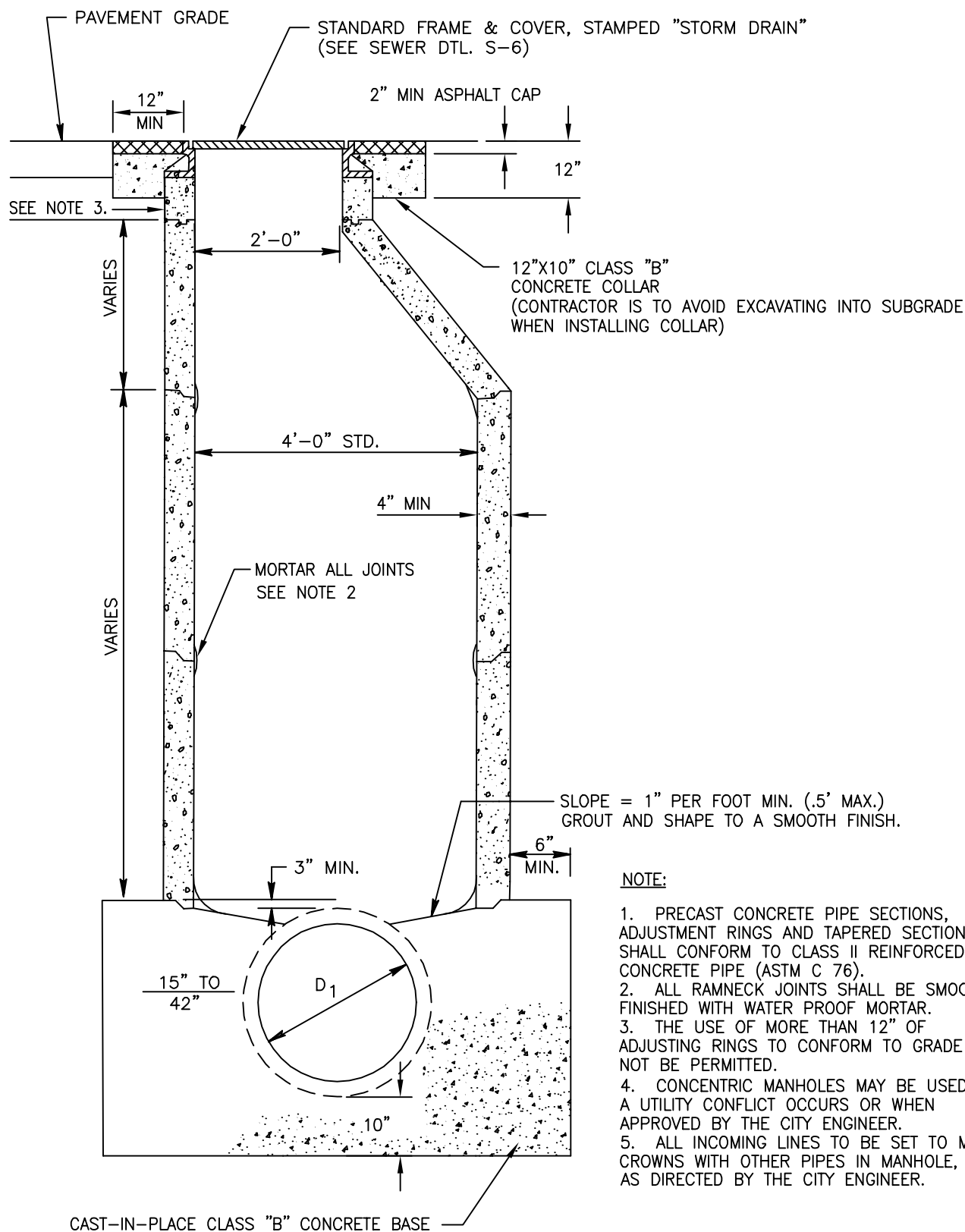
4/1/96
DATE

REVISED

GENERAL NOTES

DRAWING
NO.

SD-II



NOTE:

1. PRECAST CONCRETE PIPE SECTIONS, ADJUSTMENT RINGS AND TAPERED SECTIONS SHALL CONFORM TO CLASS II REINFORCED CONCRETE PIPE (ASTM C 76).
2. ALL RAMNECK JOINTS SHALL BE SMOOTHLY FINISHED WITH WATER PROOF MORTAR.
3. THE USE OF MORE THAN 12" OF ADJUSTING RINGS TO CONFORM TO GRADE SHALL NOT BE PERMITTED.
4. CONCENTRIC MANHOLES MAY BE USED WHEN A UTILITY CONFLICT OCCURS OR WHEN APPROVED BY THE CITY ENGINEER.
5. ALL INCOMING LINES TO BE SET TO MATCH CROWNS WITH OTHER PIPES IN MANHOLE, OR AS DIRECTED BY THE CITY ENGINEER.



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Public Works Department

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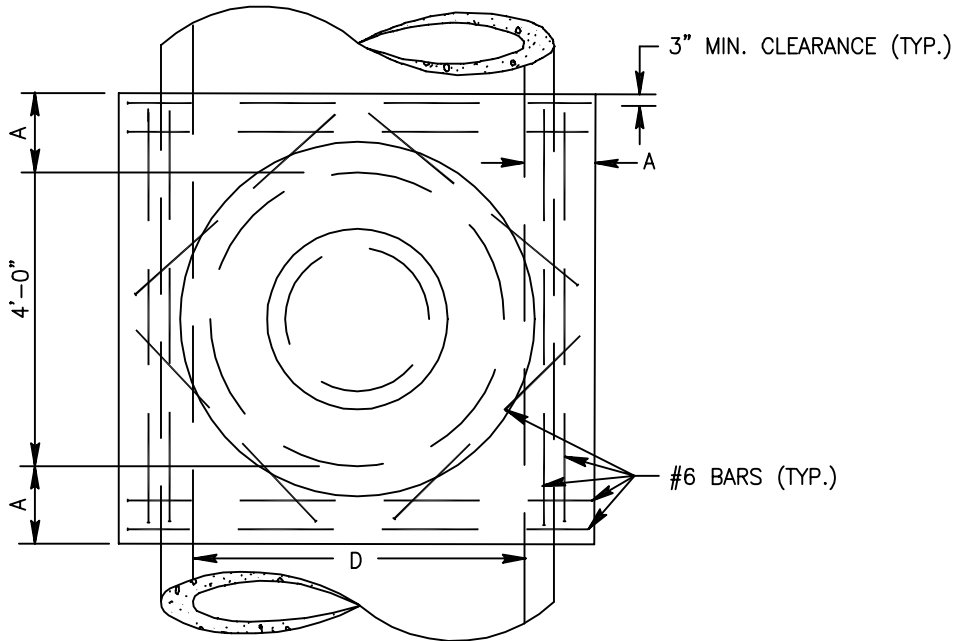
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STORM DRAIN MANHOLE PIPE SIZES 15" TO 42"

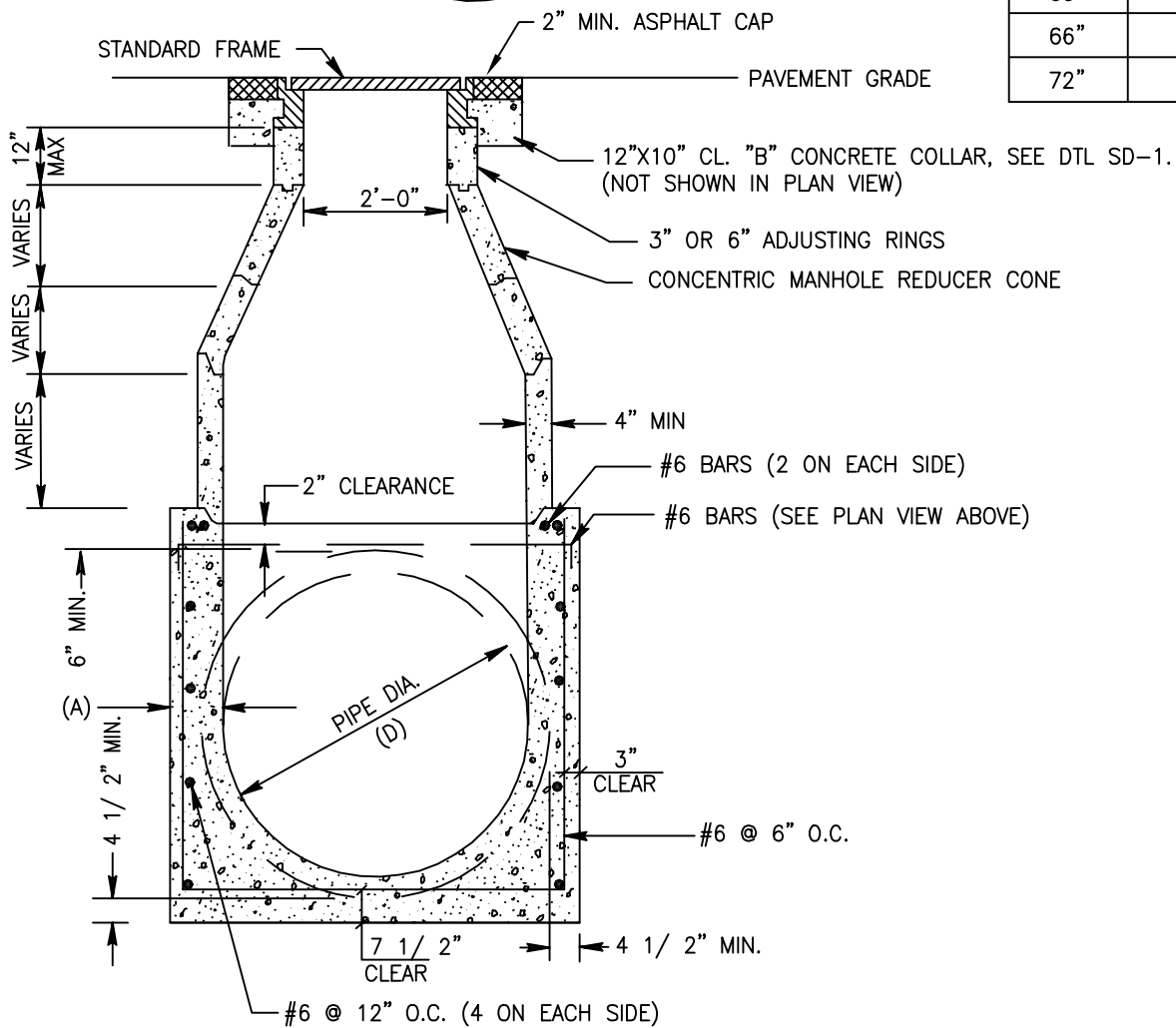
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SD-1



REDUCER DIMENSIONS	
PIPE DIA.	REDUCER DIA.
48"	48" x 48"
54"	60" x 48"
60"	60" x 48"
66"	72" x 48"
72"	72" x 48"

WALL THICKNESS (A)	
PIPE DIA. (D)	MIN (A)
42"	10"
48"	10"
54"	10"
60"	10"
66"	11"
72"	11"



City of Morgan Hill
Public Works Department

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4/1/96
DATE

6/8/00
REVISED

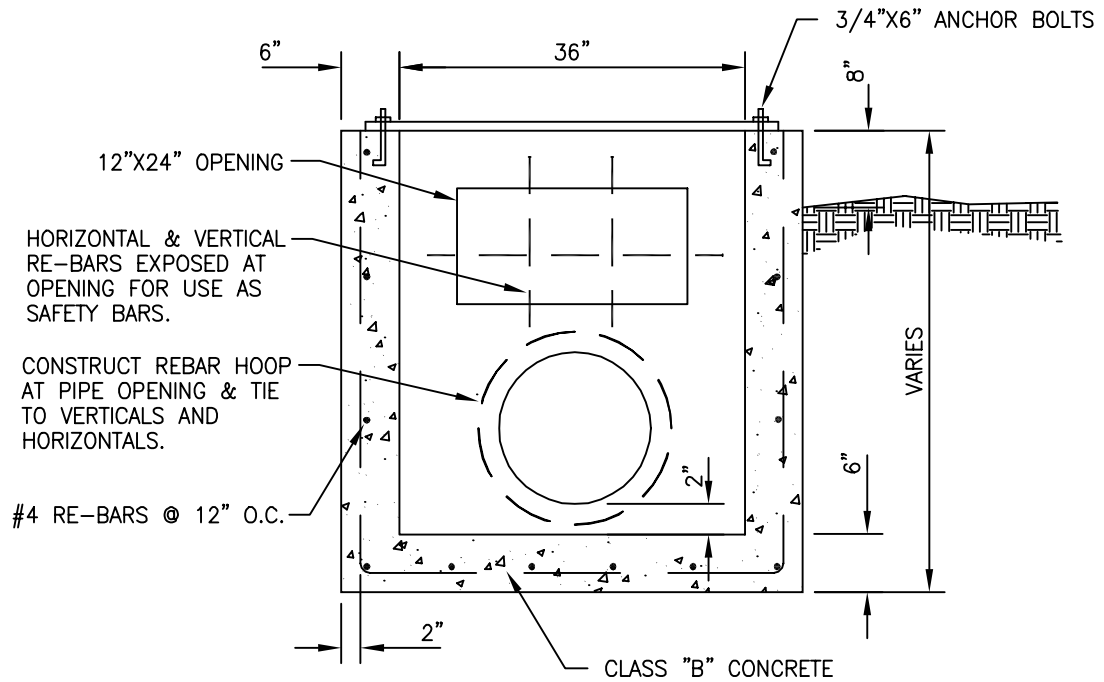
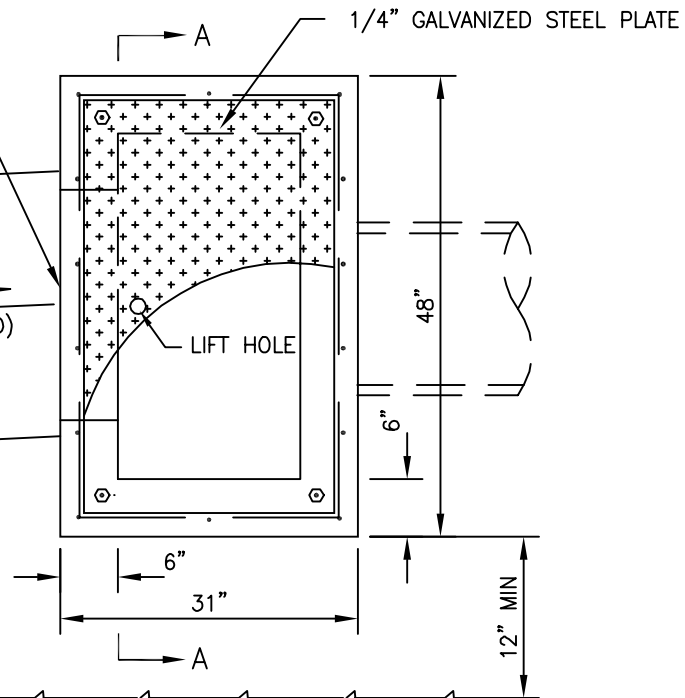
STORM DRAIN MANHOLE
PIPE SIZES 48" TO 72"

DRAWING
NO.
SD-2

CONSTRUCT 12"x24" OPENING TO ALLOW DRAINAGE FROM DITCH. INSTALL SAFETY REBAR AT OPENING, 2-#4 O.C.

CONCRETE V-DITCH
(OR GRADED SWALE, IF APPROVED)

EDGE OF PAVEMENT



SECTION A-A

NOTES:

1. COAT INSIDE OF STRUCTURE WITH MORTAR
2. INVERT OF PIPE SHALL BE 2" ABOVE BOTTOM OF INLET TO ACT AS A SEDIMENT COLLECTION BASIN.



City of Morgan Hill
Public Works Department

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CITY ENGINEER

4/1/96
DATE

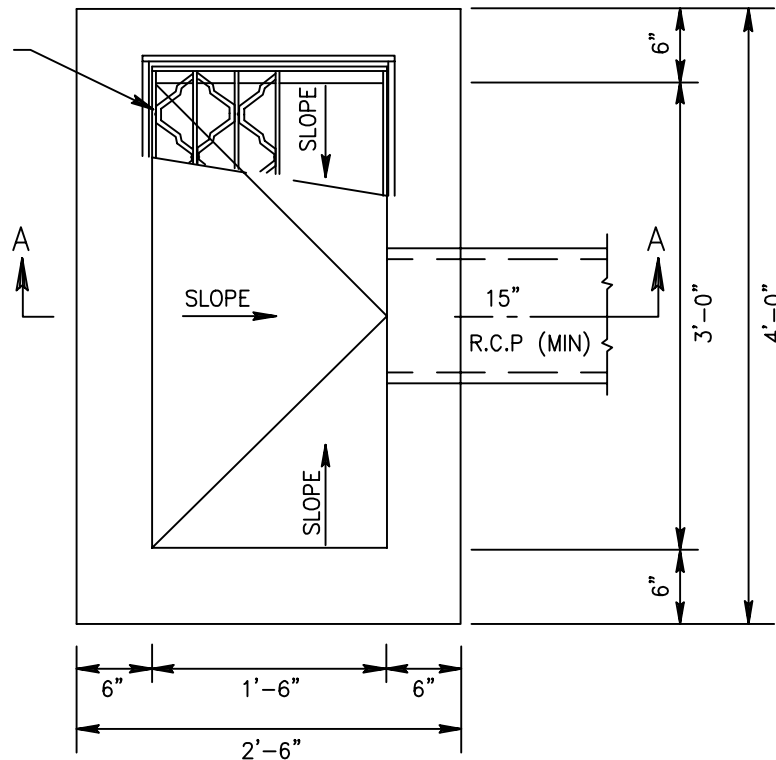
REVISED

DITCH INLET

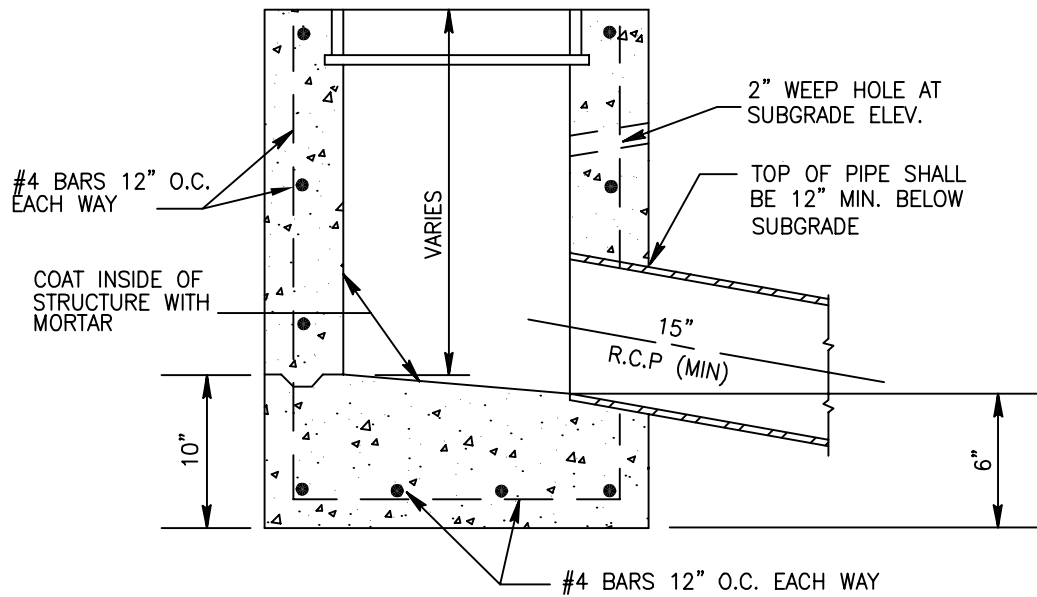
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NO.

SD-3

STANDARD FRAME AND
GRATE(SEE DETAIL SD-6)



PLAN



SECTION A-A

NOTES:

1. LARGER SIZE INLETS MAY BE REQUIRED AS INDIVIDUAL PROJECT DESIGN DICTATES.
2. DIMENSIONS SHALL BE SAME AS CURB INLET (SD-5), IF DROP INLET IS TO BE USED AS A FUTURE CURB INLET.



City of Morgan Hill
Public Works Department

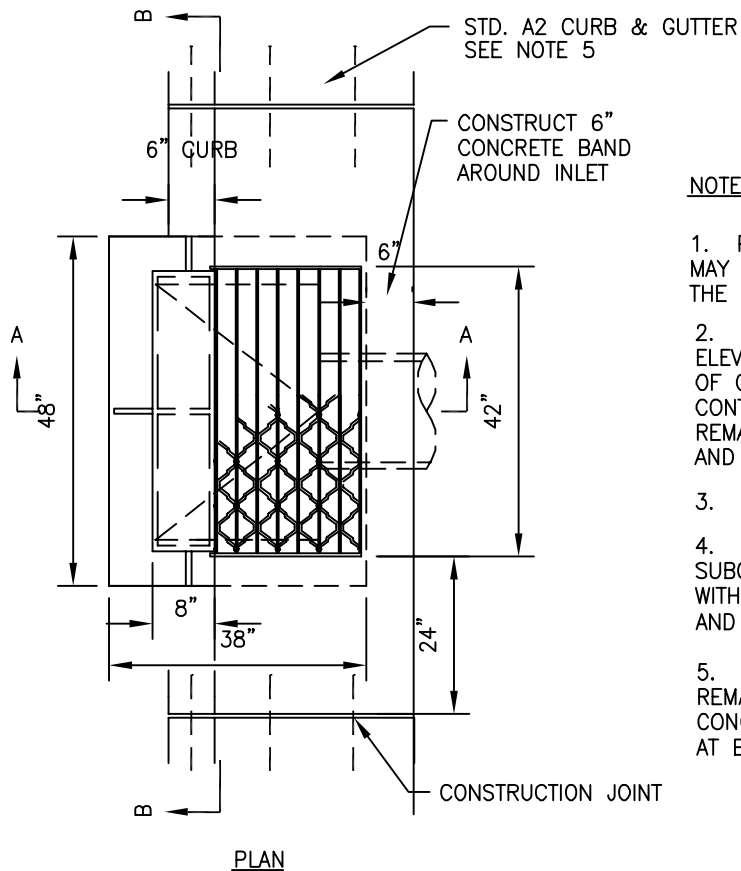
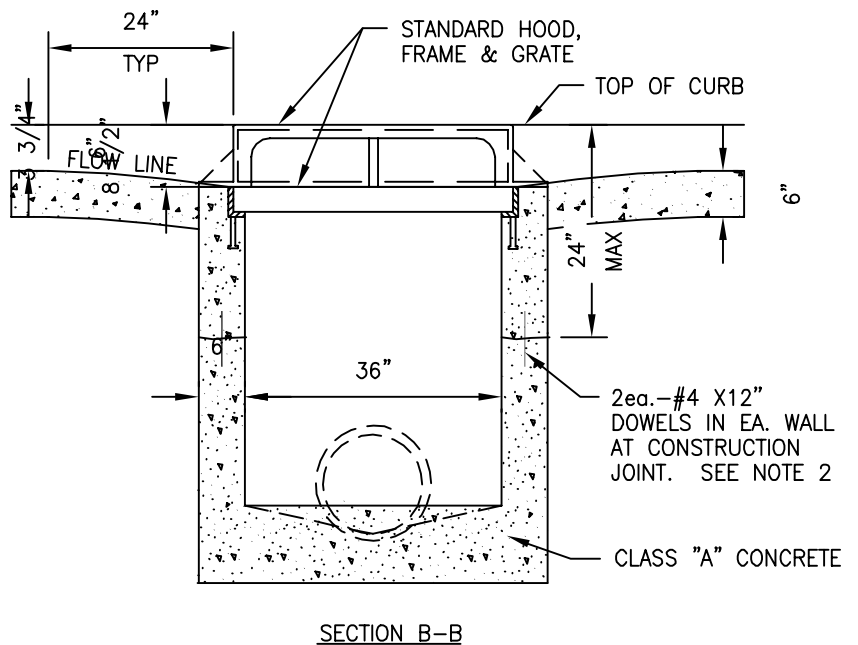
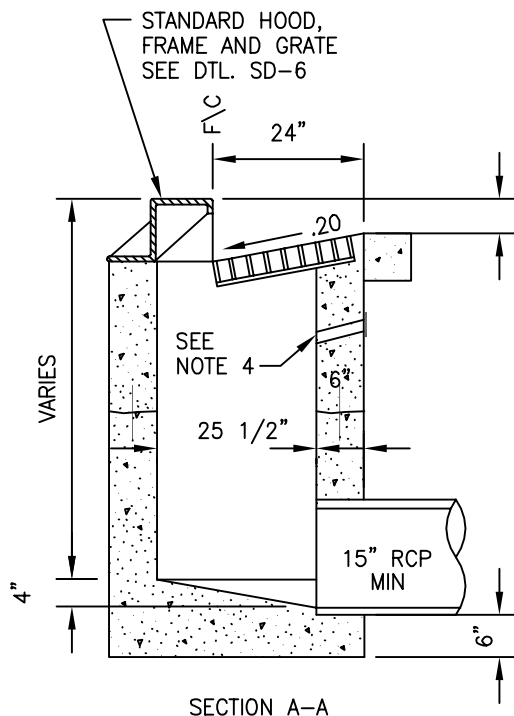
Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

8/6/98
REVISED

DROP INLET

DRAWING
NO.
SD-4



NOTES

1. PRECAST CONCRETE CATCH BASINS MAY BE USED UPON APPROVAL OF THE CITY ENGINEER.
2. C.B. WALLS WILL BE POURED TO AN ELEVATION NOT LESS THAN 24" BELOW TOP OF CURB. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FRAME IN AND POUR THE REMAINDER MONOLITHICALLY WITH THE CURB AND GUTTER.
3. GRATE TO BE PLACED AFTER CONCRETE CURES.
4. 2" DIAMETER WEEPHOLES CONSTRUCTED AT SUBGRADE LEVEL IN EACH WALL. COVER WEEP HOLE WITH GEOTEXTILE FABRIC DURING SUB-GRADE PREPARATION, AND MORTAR AFTER FINISH PAVING.
5. WHEN CURB & GUTTER IS POURED SEPARATELY FROM REMAINING INLET (MANUALLY OR BY MACHINE), THE CONCRETE CONTRACTOR SHALL INSERT 3ea #4X12" REBAR AT EACH CONSTRUCTION JOINT AS SHOWN.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

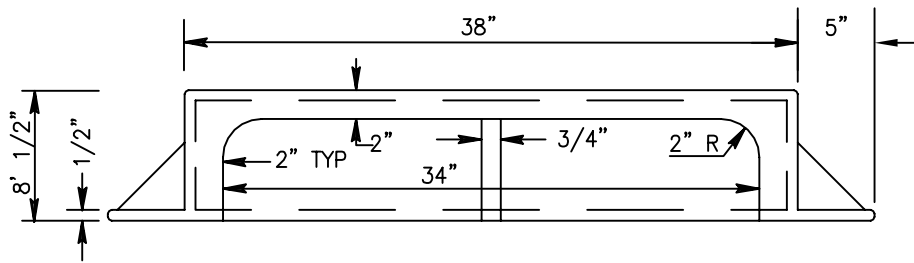
4/1/96
DATE

8/6/98
REVISED

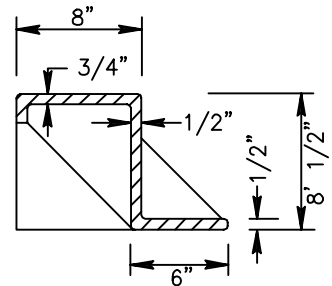
CURB INLET

DRAWING
NO.

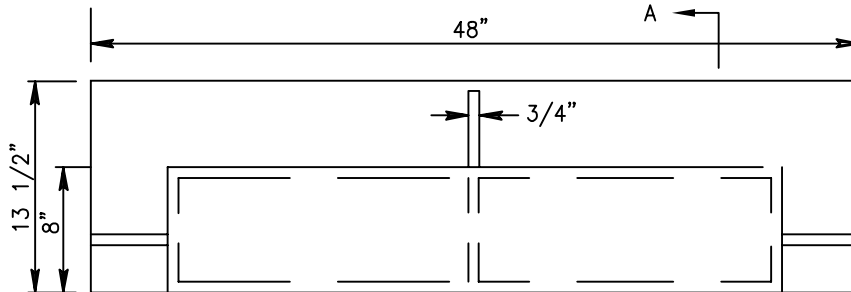
SD-5



HOOD- FRONT VIEW



SECTION A-A



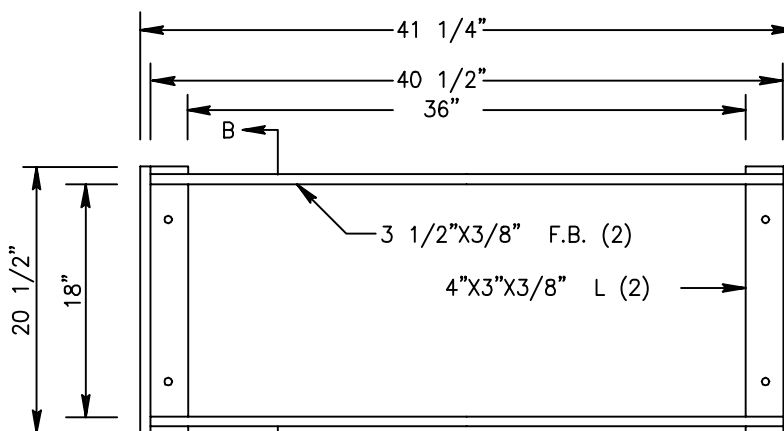
HOOD- PLAN VIEW

NOTES

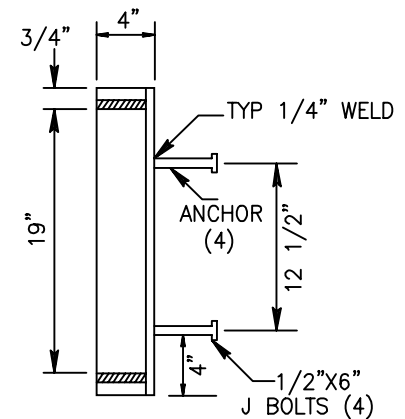
HOOD SHALL BE CAST IRON AND BE EQUAL TO PHOENIX IRON WORKS P-6002 OR SAN JOSE FOUNDRY'S "LARGE".

WEIGHT OF HOOD = 185 LBS (MIN)

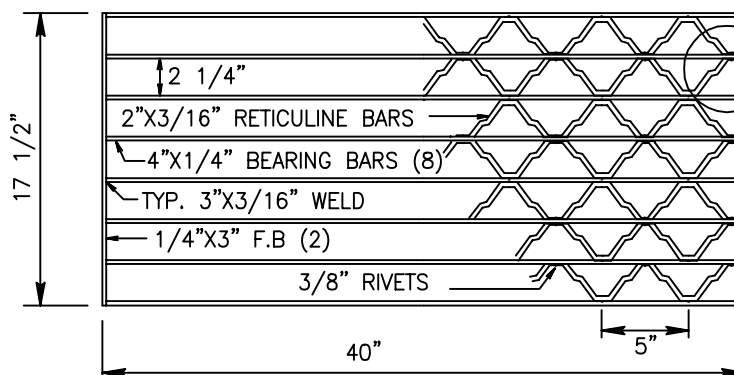
CASTING SHALL BE GIVEN A HOT ASPHALT DIP



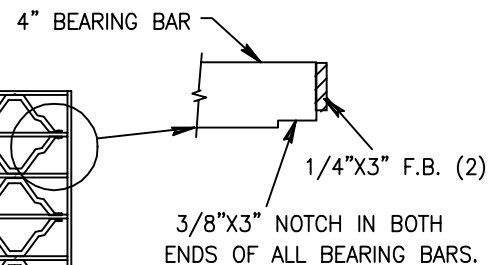
FRAME- PLAN VIEW



SECTION B-B



GRATE- PLAN VIEW



NOTES

FRAME AND GRATE SHALL BE EQUAL TO PHOENIX IRON WORKS P-6301 OR METALFAB M-1001

MATERIAL TO BE HOT DIP GALVANIZED AFTER FABRICATION



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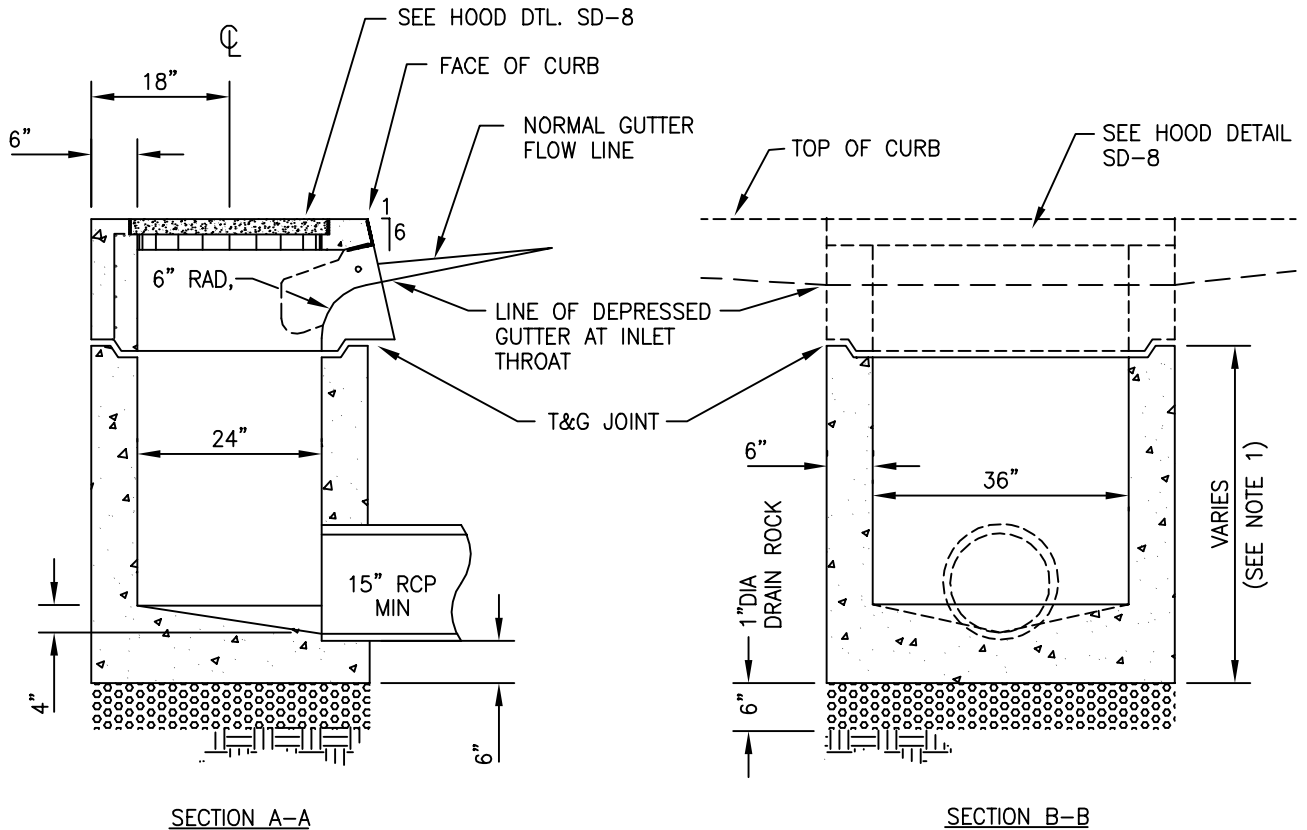
4/1/96
DATE

REVISED

HOOD, FRAME AND GRATE

DRAWING
NO.

SD-6



NOTES

1. FOR PRE-CAST BASE HEIGHT, ORDER AS REQUIRED PER PLANS, EXCLUDING HOOD DIMENSION.
2. PRE-CAST BASE SHOWN IS FOR USE WITH SPECIAL HOOD AND GALLERY. PRE-CAST BASES USED WITH SD-5 CURB INLET ARE NOT ALLOWED.
3. BASE SHALL BE "SANTA ROSA" CAST PRODUCTS 1L, OR APPROVED EQUAL.
4. APPLICATION: COMBINATION PRE-CAST HOOD (SD-8), PRE-CAST BASE, AND FIBERGLASS GALLERY (SD-9), SHALL ONLY BE USED UPON CITY ENGINEER APPROVAL.



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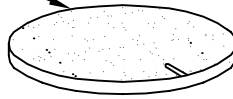
4/1/96
DATE

REVISED

PRE-CAST BASE GALLERY SYSTEM CURB INLET

DRAWING
NO.
SD-7

PRE-CAST CONCRETE ACCESS
COVER 26 3/4" DIA. X 2" THICK
WITH 10 GA. GALV. STEEL
LID RING

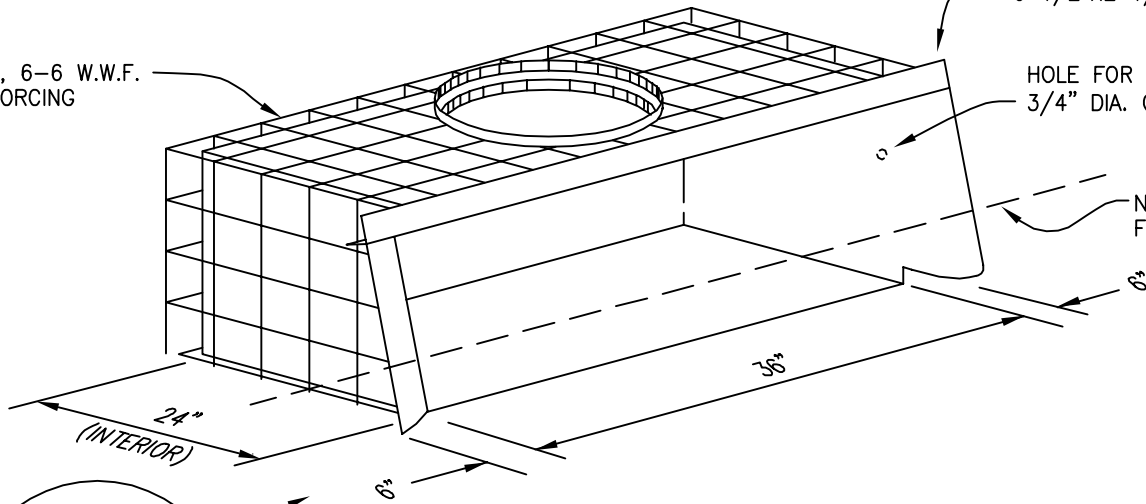


4"x4", 6-6 W.W.F.
REINFORCING

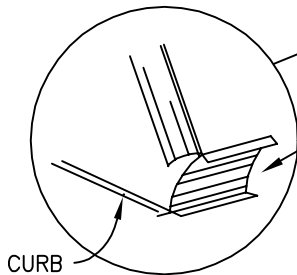
NOSING ANGLE
3 1/2"x2 1/2"x1/4"

HOLE FOR OPTIONAL
3/4" DIA. GUARD ROD

NORMAL GUTTER
FLOW LINE



ISOMETRIC



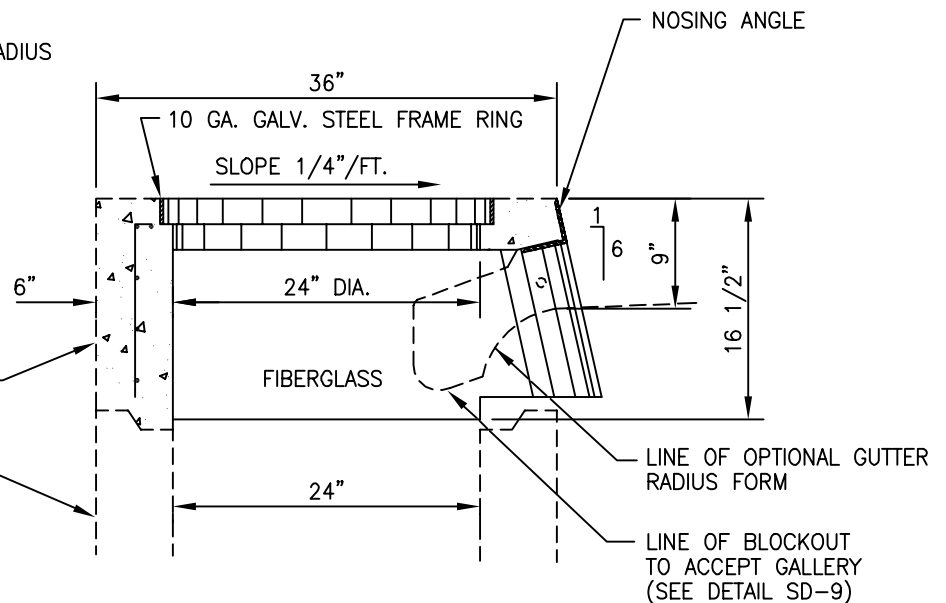
DETAIL

OPTIONAL FIBERGLASS
GUTTER RADIUS FORM

GUTTER RADIUS

FIELD POUR CONCRETE

PRECAST OR CAST IN
PLACE BASE
(SEE DETAIL SD-7)



TYPICAL SECTION

- NOTES:
1. HOOD SHOWN IS FOR USE WITH 7' OR 12' GALLERY AND SPECIAL BASE ONLY. HOOD WITHOUT GALLERY OR BASE WILL NOT BE ALLOWED.
 2. HOOD SHALL BE "SANTA ROSA CAST PRODUCTS MODEL 3AJ", OR APPROVED EQUAL.
 3. APPLICATION: COMBINATION PRE-CAST HOOD, FIBERGLASS GALLERY (SD-9), AND PRE-CAST BASE (SD-7), SHALL ONLY BE USED UPON CITY ENGINEER APPROVAL.



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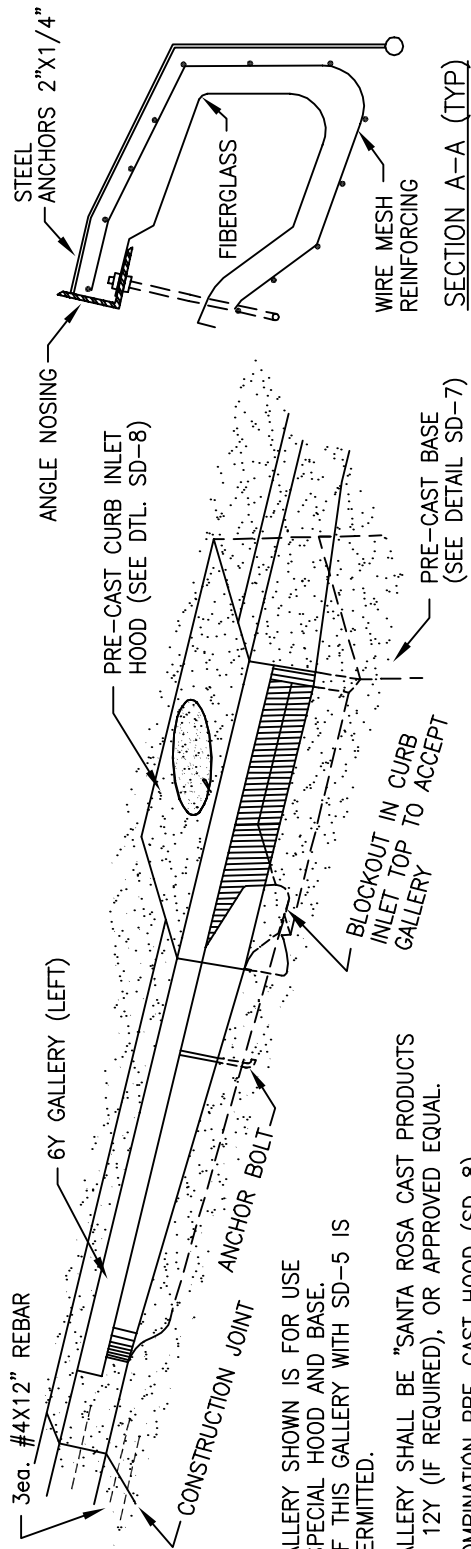
4/1/96
DATE

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HOOD GALLERY SYSTEM CURB INLET

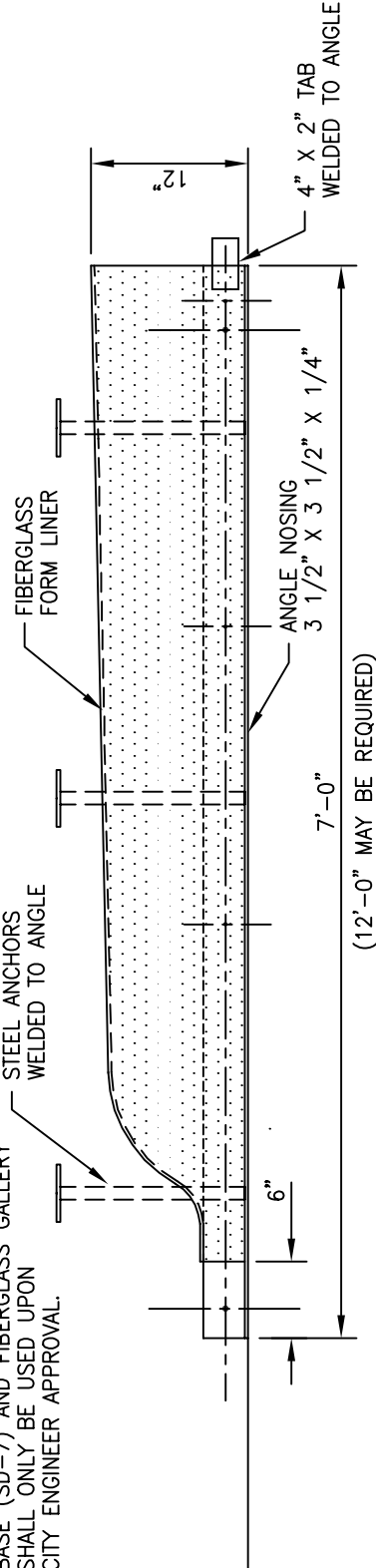
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NO.

SD-8

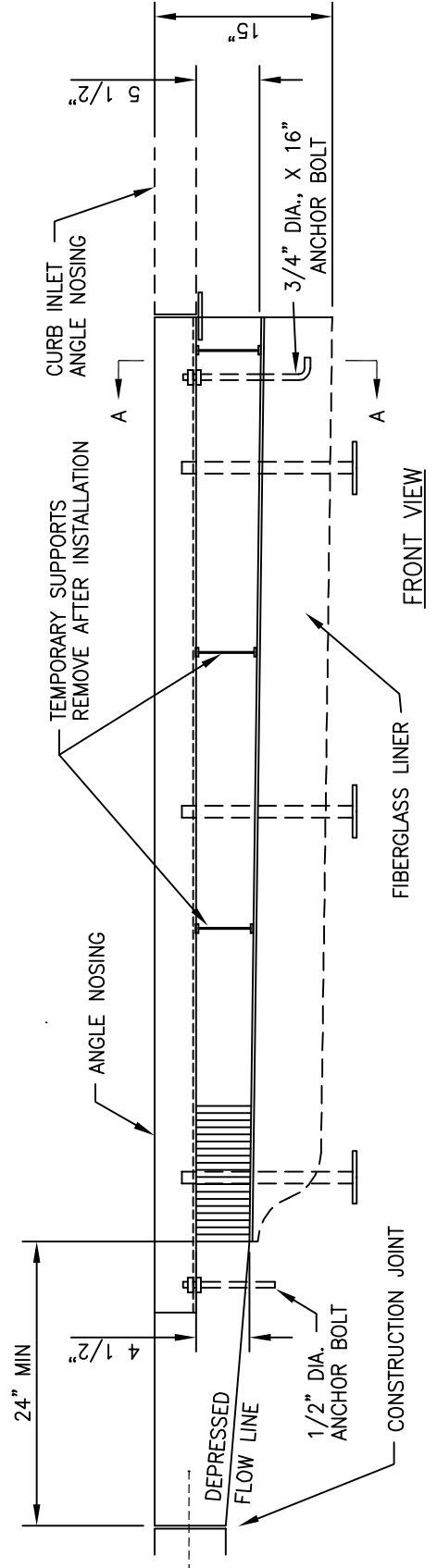


NOTES:

1. GALLERY SHOWN IS FOR USE WITH SPECIAL HOOD AND BASE. USE OF THIS GALLERY WITH SD-5 IS NOT PERMITTED.
2. GALLERY SHALL BE "SANTA ROSA CAST PRODUCTS 6Y OR 12Y (IF REQUIRED), OR APPROVED EQUAL.
3. COMBINATION PRE-CAST HOOD (SD-8), BASE (SD-7) AND FIBERGLASS GALLERY SHALL ONLY BE USED UPON CITY ENGINEER APPROVAL.



PLAN VIEW



FRONT VIEW



City of Morgan Hill
Public Works Department

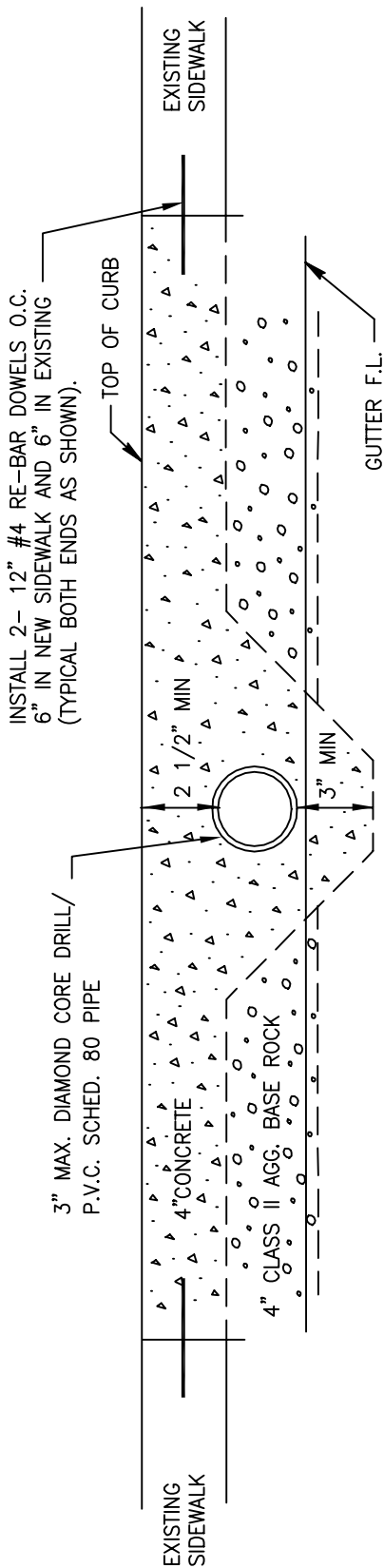
Jim Oakcraft
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4/1/96
DATE

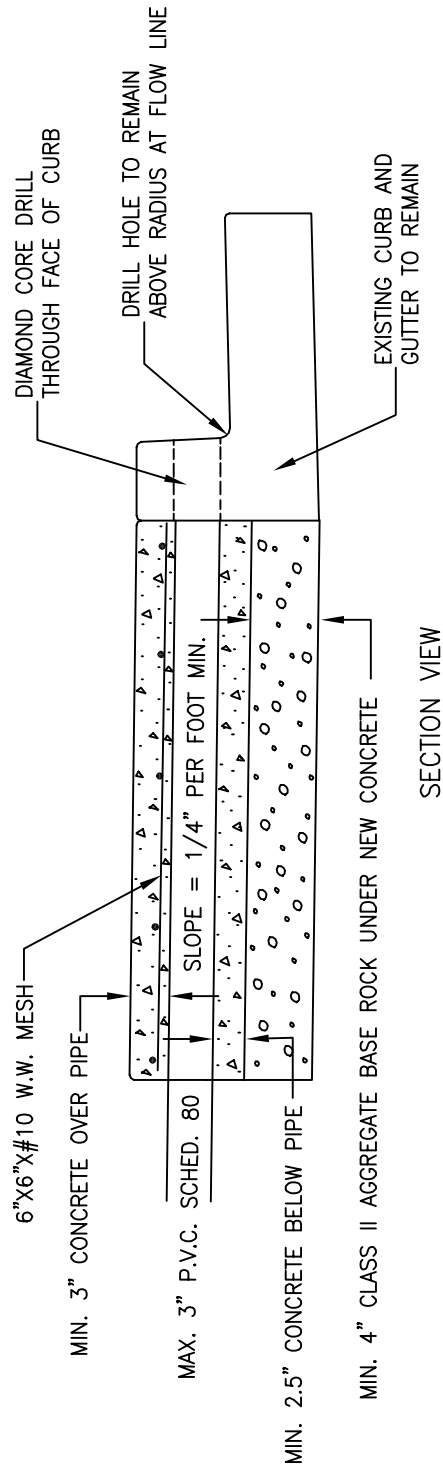
REVISD

FIBERGLASS GALLERY
GALLERY SYSTEM CURB INLET

DRAWING
NO.
SD-9



ELEVATION AT FACE OF CURB



NOTES

1. IT SHALL BE THE HOMEOWNER'S RESPONSIBILITY TO MAINTAIN THIS DRAINAGE STRUCTURE.
2. MULTIPLE DRAINLINES MAY BE INSTALLED PROVIDED THAT THERE IS A MINIMUM OF 6" BETWEEN ANY DRAIN LINES, AND DRAIN LINES SHALL NOT BE INSTALLED WITHIN 6" OF ANY EXPANSION AND/OR CONTROL JOINTS.
3. THIS DRAINAGE STRUCTURE SHALL ONLY BE INSTALLED WITHIN THE PROPERTY FRONTAGE OF THE SUBJECT PROPERTY ONLY.
4. PROPERTY OWNER SHALL OBTAIN AN ENCROACHMENT PERMIT TO INSTALL THIS DRAINAGE STRUCTURE.



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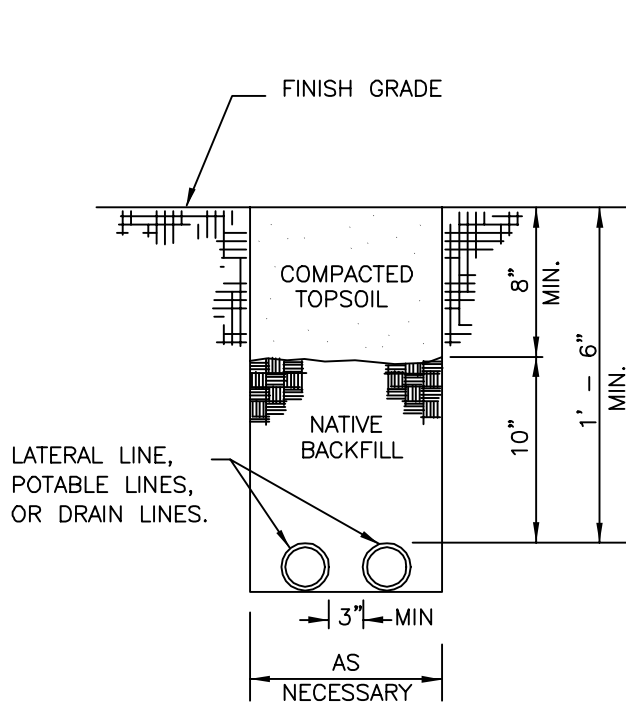
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4/1/96
DATE

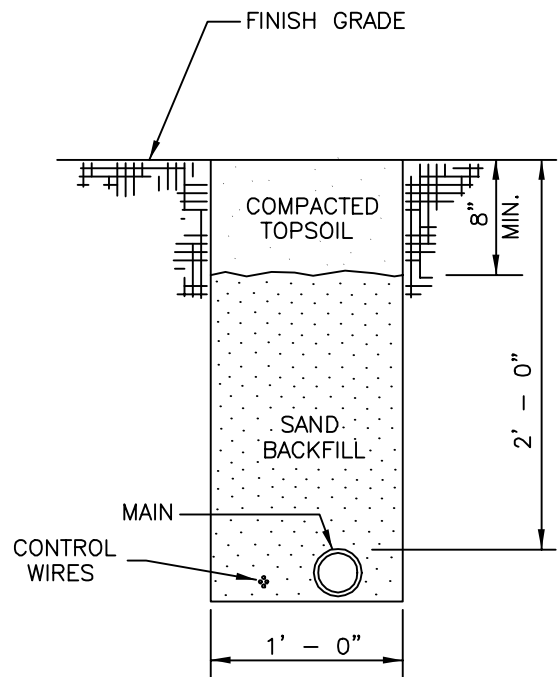
4/20/99
REVISED

"THROUGH THE CURB" DRAIN

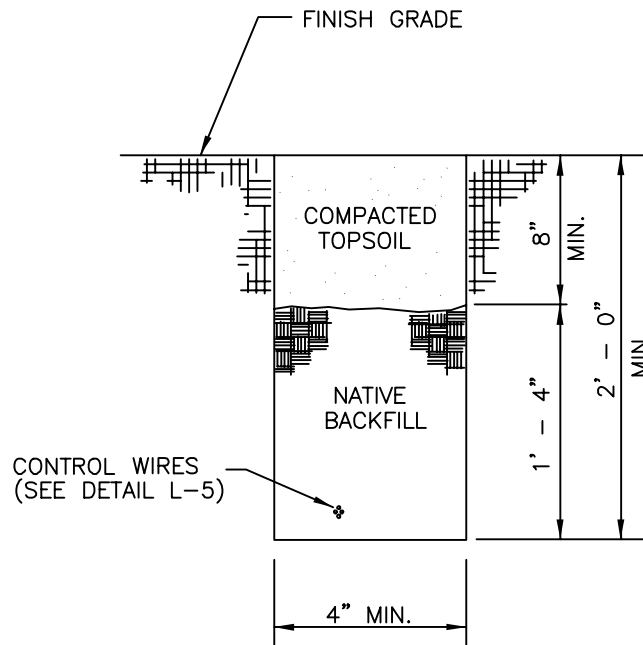
DRAWING
NO.
SD-10



LATERAL LINE AND POTABLE LINE



MAIN & CONDUCTORS



CONDUCTORS ONLY

NOTE:

1. TAPE AND BUNDLE WIRING AT 10 FOOT INTERVALS.
2. NATIVE BACKFILL AND TOP SOIL TO BE FREE OF ROCK AND DEBRIS.(3/4" MAX. ROCK SIZE)



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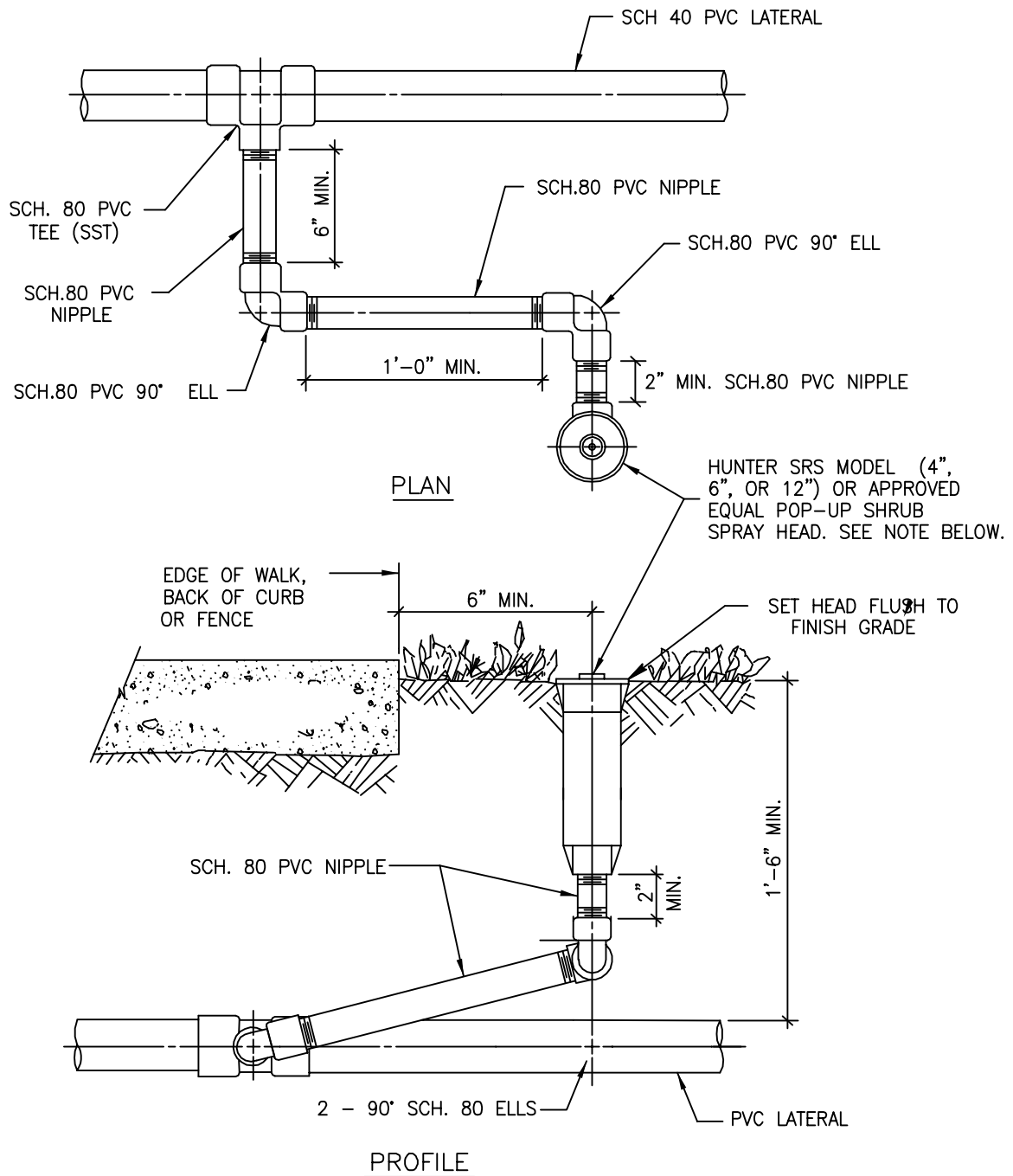
Jim Cahcraft
CITY ENGINEER

8/6/98
DATE

6/8/00
REVISED

IRRIGATION
AND
DRAIN LINE TRENCH

DRAWING
NO.
L-1



NOTE

1. POP-UP SIZE DEPENDENT UPON PLANT MATERIAL.



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8/6/98
DATE

REVISED

HIGH POP-UP SHRUB HEAD

DRAWING
NO.

L-2

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Public Works Department

CITY ENGINEER

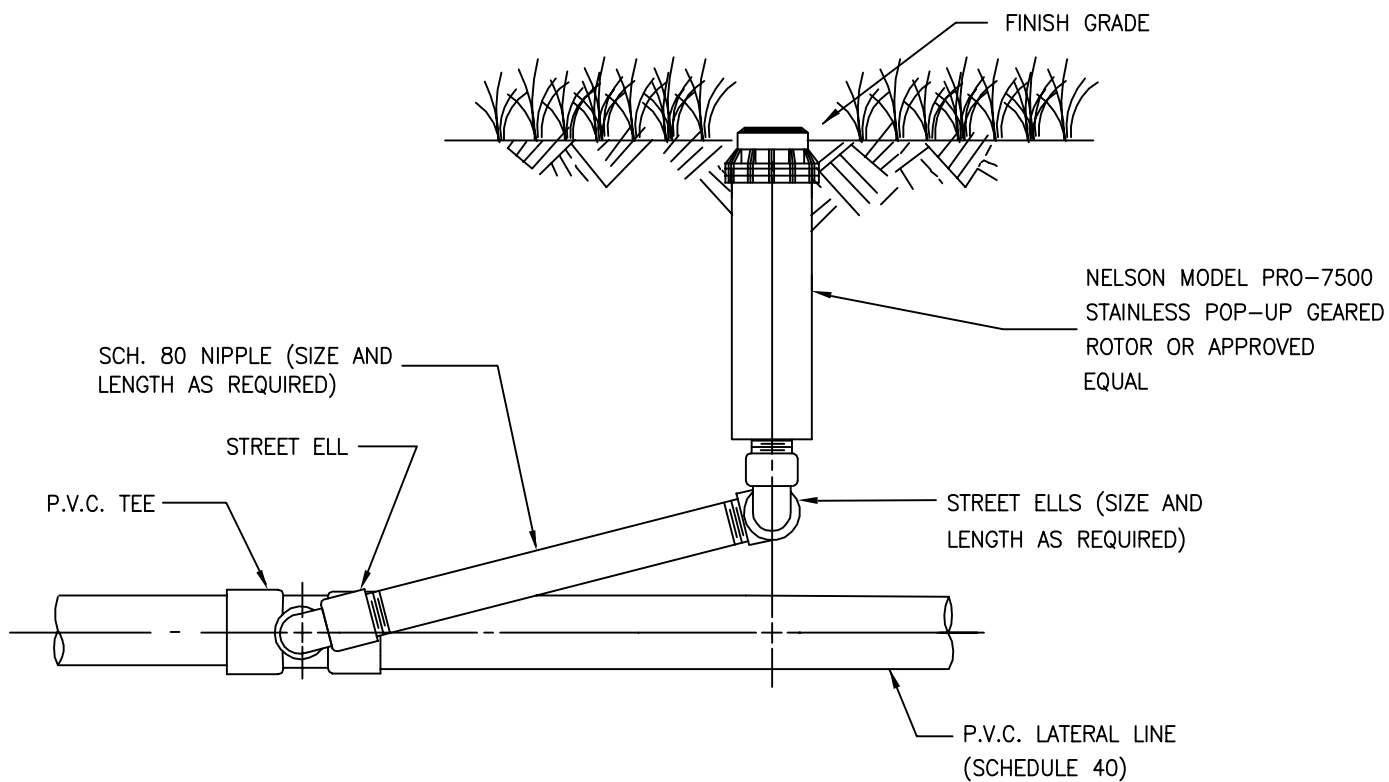
DATE

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DRAWING
NO.

L-3



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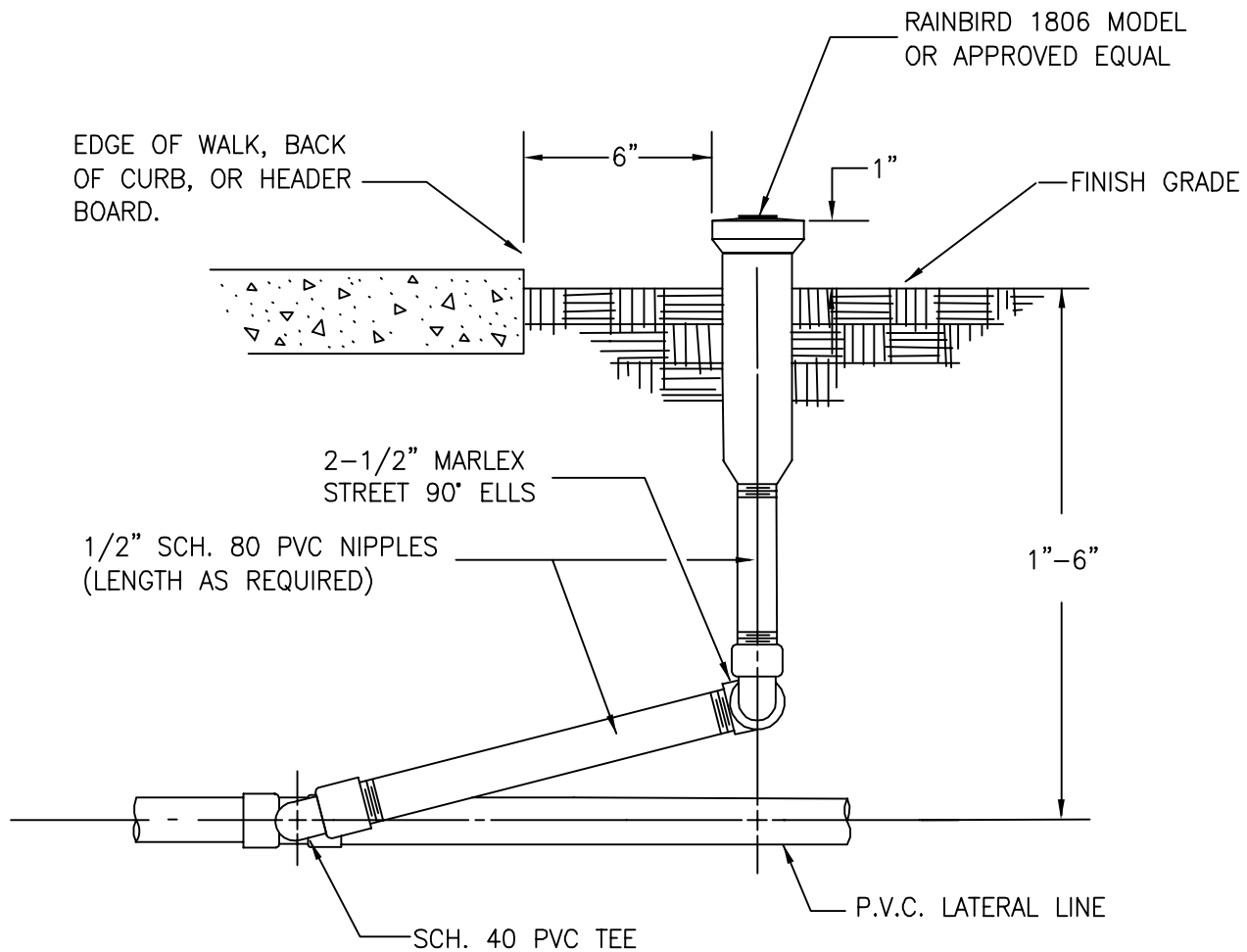
8/6/98
DATE

REVISED

TURF ROTOR POP-UP RISER

DRAWING
NO.

L-4



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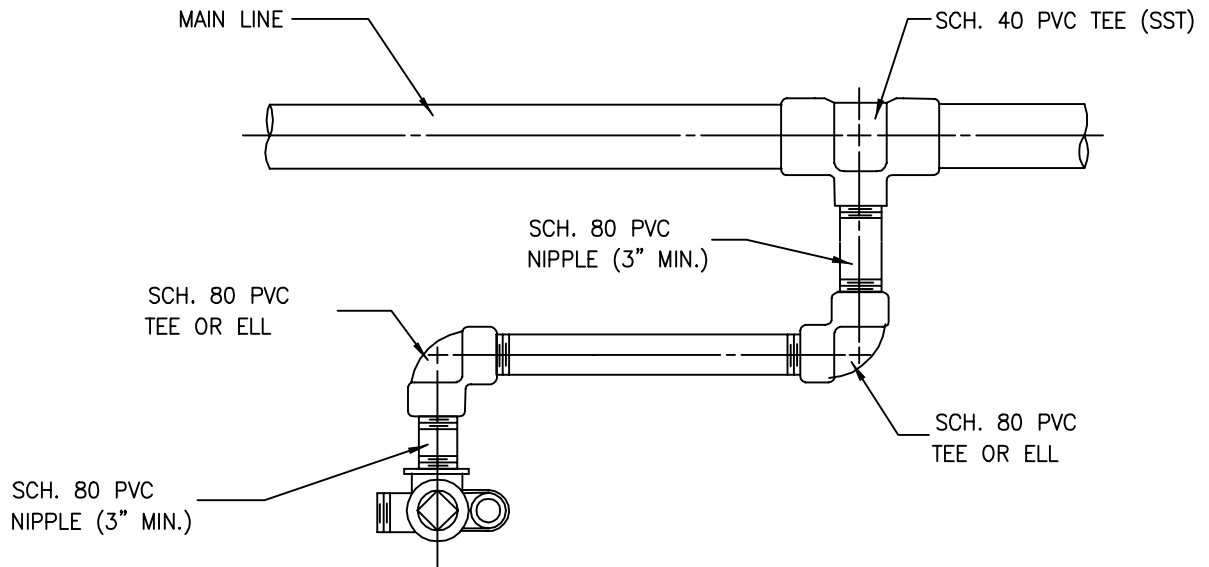
8/6/98
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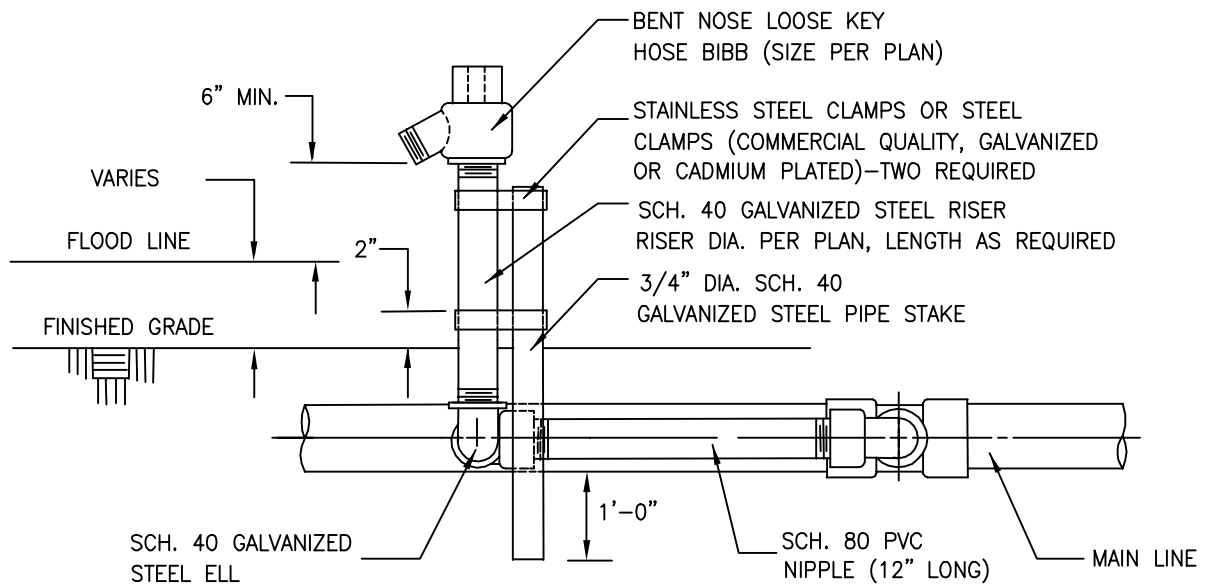
6" POP-UP SPRAY HEAD

DRAWING
NO.

L-5



PLAN



ELEVATION

NOTES:

1. ALL PIPE AND FITTINGS TO BE SCH. 80 PVC UNLESS OTHERWISE NOTED.
2. PIPE SIZE FROM MAIN LINE SHALL MATCH HOSE BIBB INLET DIAMETER.
3. DISSIMILAR METALS SHALL BE SEPARATED BY AN APPROVED DIELECTRIC COUPLING.
4. PLASTIC PIPE SHALL NOT BE USED ABOVE GRADE.



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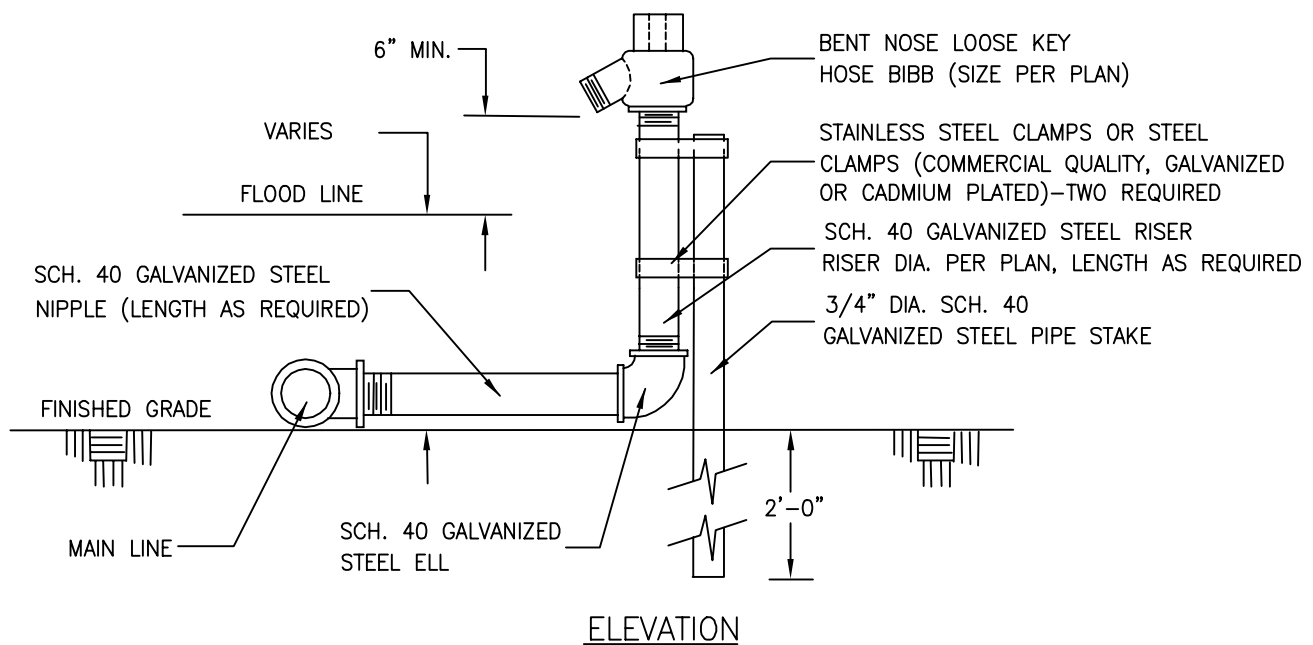
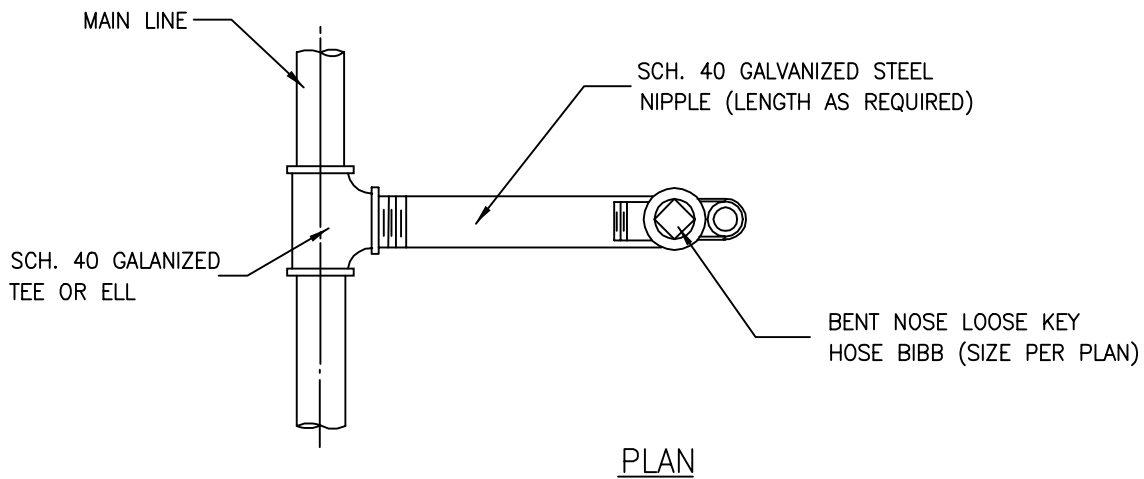
8/6/98
DATE

REVISED

HOSE BIBB VALVE BELOW GROUND INSTALLATION

DRAWING
NO.

L-6



NOTES:

1. ALL PIPE AND FITTINGS TO BE SCH. 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED.
2. PIPE SIZE FROM MAIN LINE SHALL MATCH HOSE BIBB INLET DIAMETER.
3. DISSIMILAR METALS SHALL BE SEPARATED BY AN APPROVED DIELECTRIC COUPLING.
4. PLASTIC PIPE SHALL NOT BE USED ABOVE GRADE.



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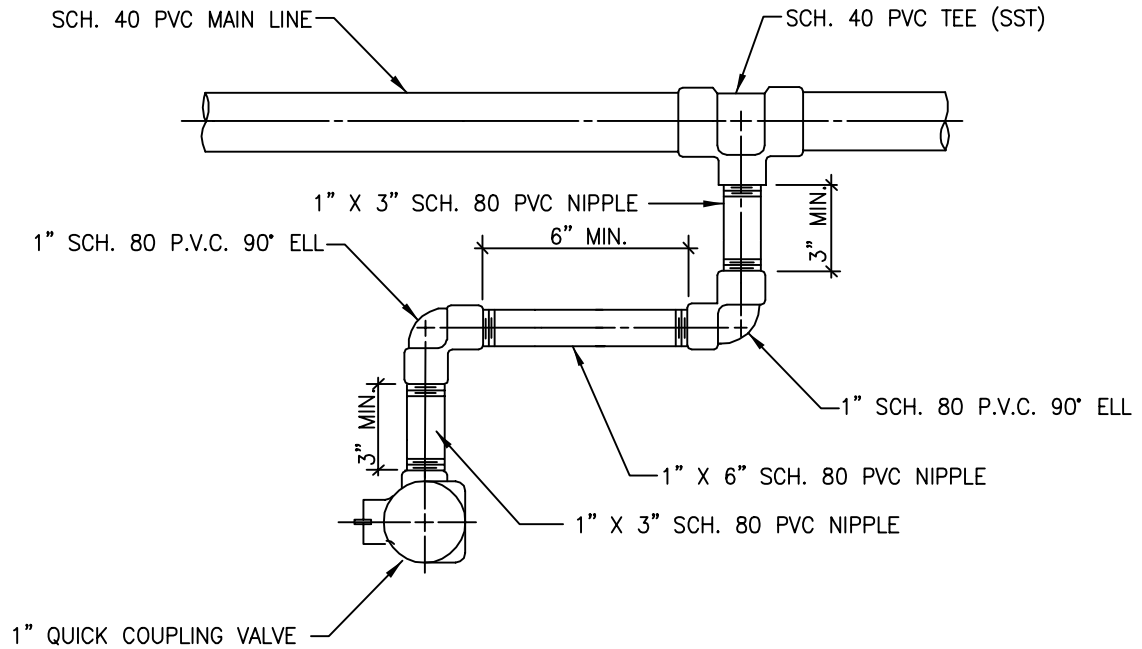
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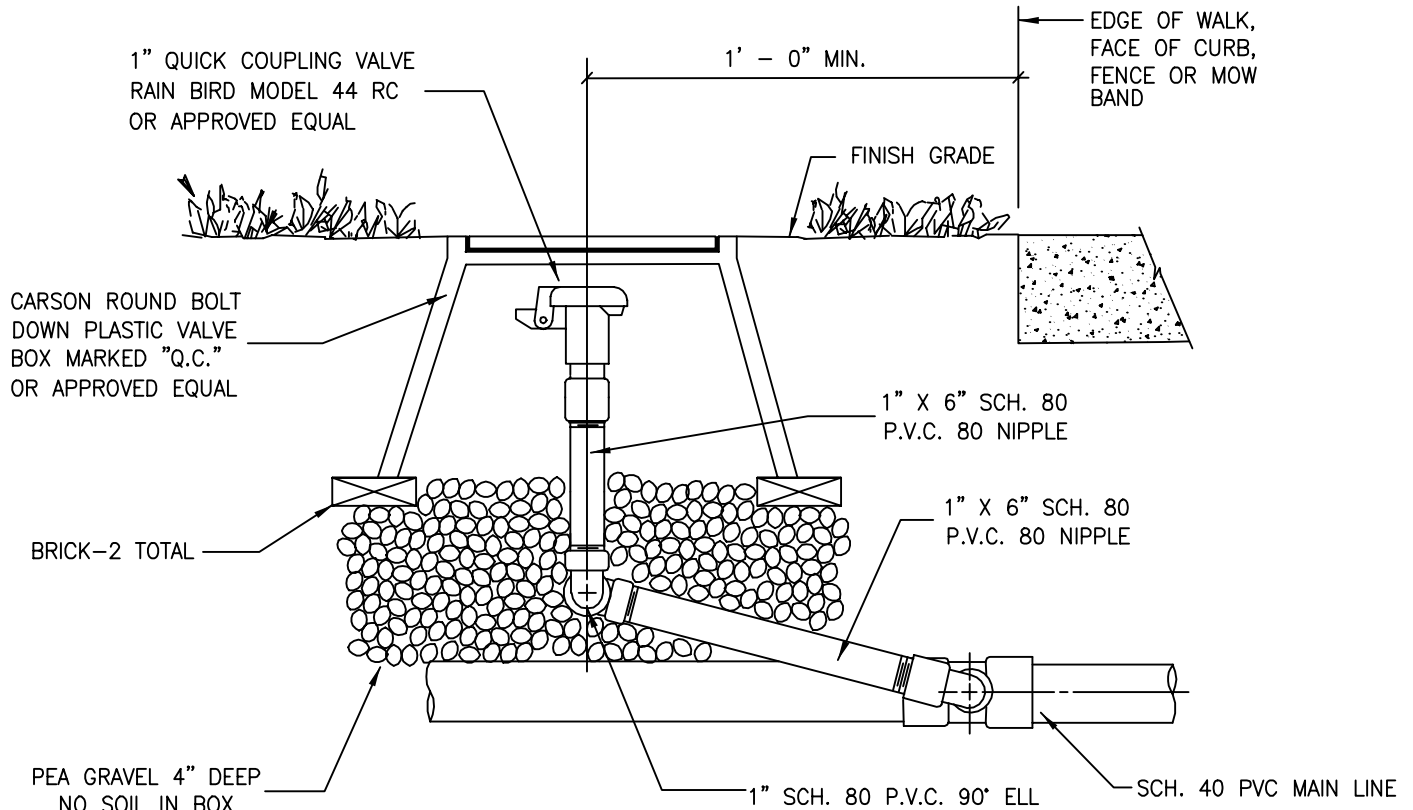
HOSE BIBB VALVE ABOVE GROUND INSTALLATION

DRAWING
NO.

L-7



PLAN



PROFILE

- NOTES: 1. ALL PIPING TUBE TO BE 1" OR LARGER.
2. VALVE BOX LID TO HAVE "Q.C." MOLDED INTO TOP OF LID OR BRASS TAG INSTALLED ON LID MARKED "Q.C.".



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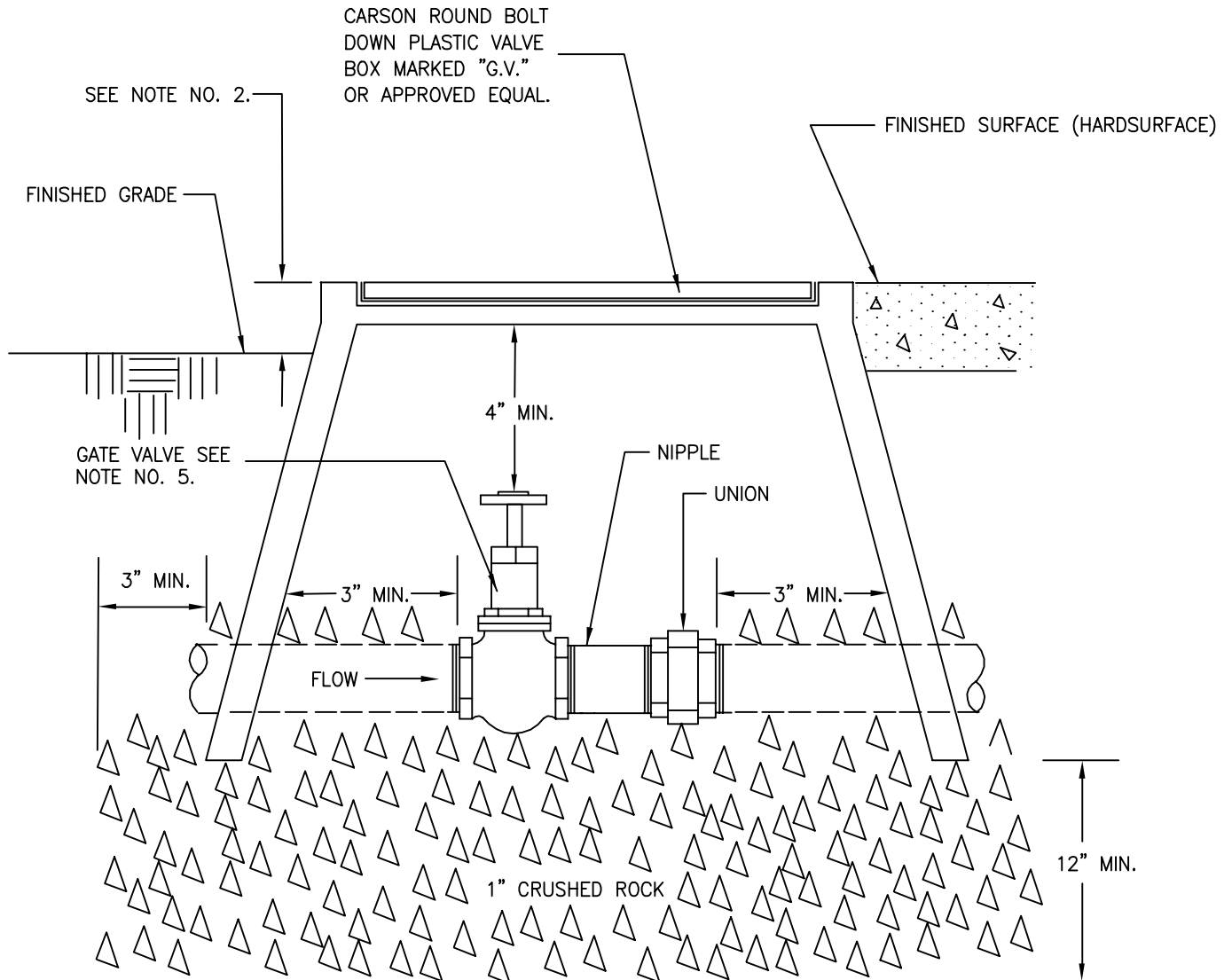
8/6/98
DATE

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1" QUICK COUPLING VALVE

DRAWING
NO.

L-8



NOTES:

1. AREA AROUND BOX CAN EITHER BE PLANTED, HARDSURFACE OR A COMBINATION.
2. TOP OF BOX:
1/2" ABOVE GRADE OR LAWN.
1" ABOVE GRADE FOR GROUND COVER OR SHRUBS.
3. CLOSE NIPPLES SHALL NOT BE USED.
4. CRUSHED ROCK SHALL COVER VALVE BOX PIPE OPENINGS TO PREVENT SOIL ENTRY.
5. GATE VALVE SHALL BE "RED & WHITE", OR APPROVED EQUAL.



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GATE VALVE

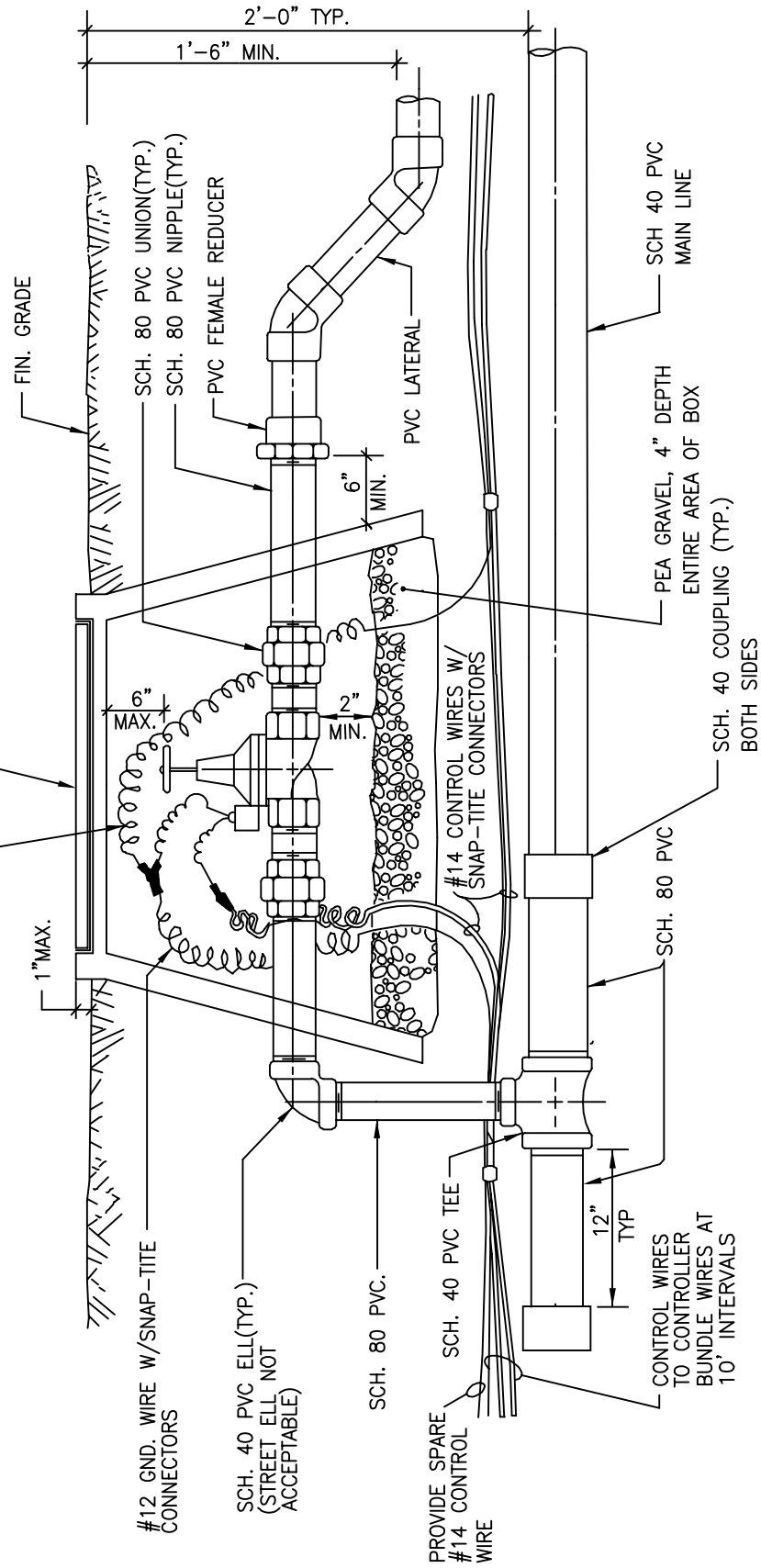
DRAWING
NO.

L-9

NOTE: PROVIDE EACH VALVE WITH AN
EMBOSSSED PLASTIC OR METAL TAG
SHOWING CONTROLLER & STATION NUMBER.

PLASTIC BOX WITH LOCKABLE COVER, SET FLUSH
TO GRADE WITHIN THE MEDIAN OR BACK-UP AREA.
BOX SHALL BE "CARSON", OR APPROVED EQUAL.
LID TO HAVE "RCV STA. #____" MOLDED TO LID,
OR STAMPED ON BRASS TAG.

ALL CONTROL WIRES SHALL BE COILED 3 FEET INTO
EACH BOX EXCEPT IN CLUSTERS



NOTE: HEAVILY COAT ALL THREADED AREAS
WITH JOINT COMPOUND.

NOTE: CONTROL VALVE TO BE GRISWOLD
2000 SERIES OR APPROVED EQUAL.



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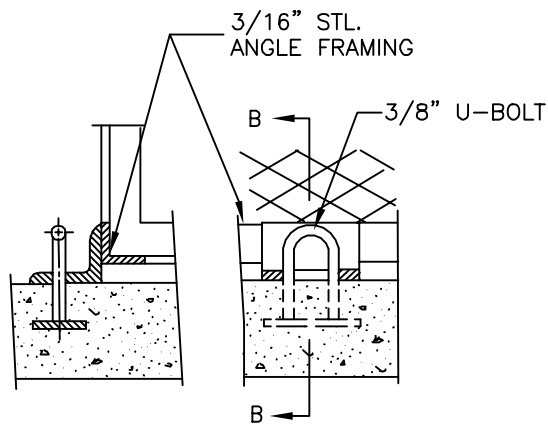
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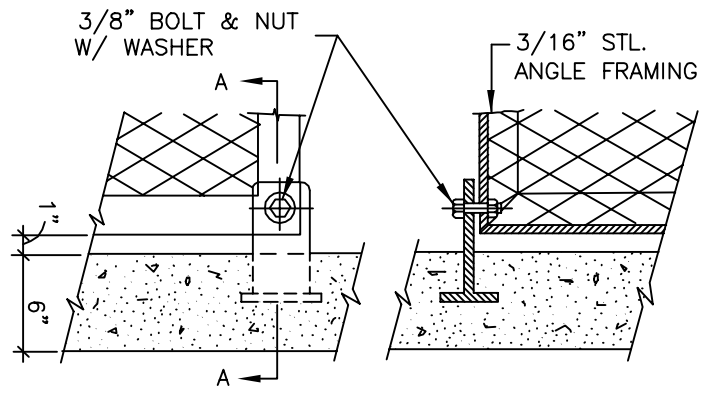
REMOTE CONTROL VALVE WITHOUT Q.C. VALVE

DRAWING
NO.

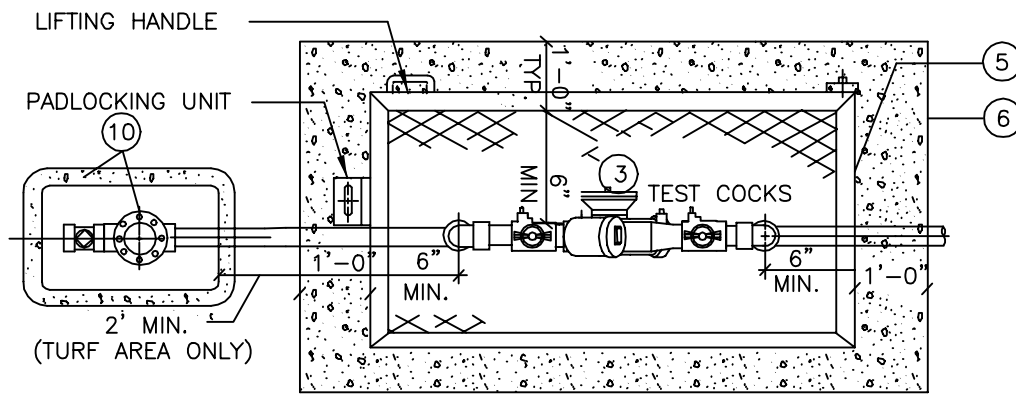
L-10



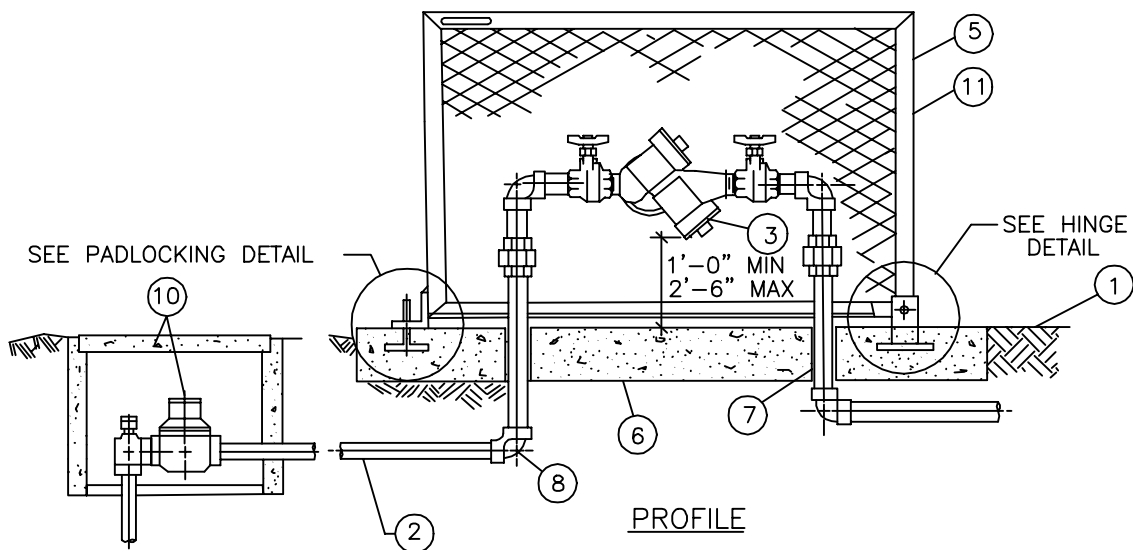
SECTION B-B
ELEVATION
PADLOCKING DETAIL



SECTION A-A
ELEVATION
HINGE DETAIL



PLAN



PROFILE

FOR MEDIAN ISLANDS AND PUBLIC PARKS/FACILITIES
(SIZES 3/4" TO 2")



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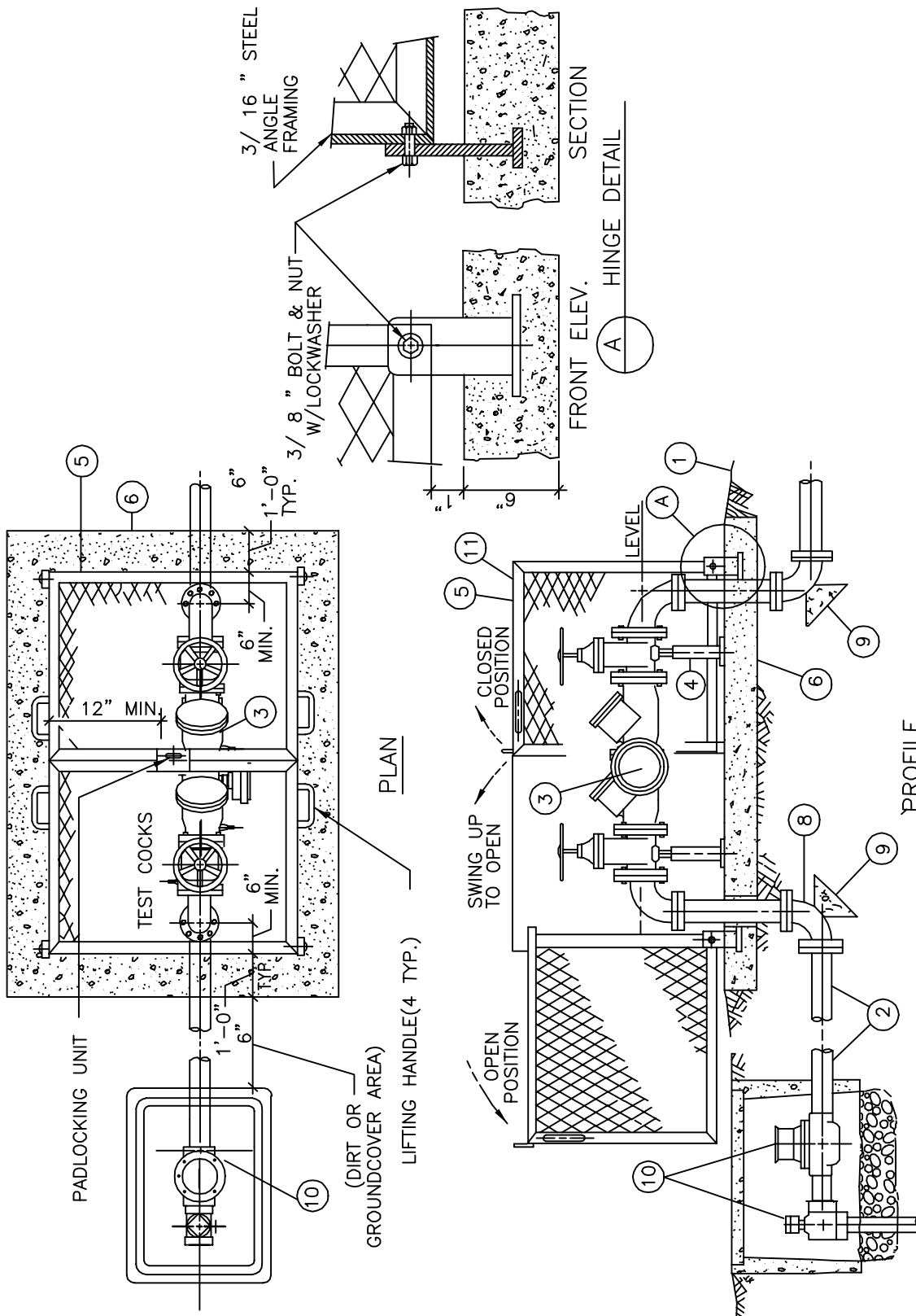
8/1/97
DATE

REVISED

R.P. BACKFLOW PREVENTER
WITH SINGLE-SWING
HINGED ENCLOSURE

DRAWING
NO.

L-11



(FOR MEDIAN ISLANDS & PUBLIC PARKS/FACILITIES
(FOR SIZES 2 1/2" TO 4")
NOTE: FOR NOTES AND LEGEND SEE SHEET L-8.



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8/6/98
DATE

REVISED

R.P BACKFLOW PREVENTER WITH DOUBLE-SWING HINGED ENCLOSURE

DRAWING
NO.
L-12

NOTE: THESE NOTES APPLY TO LANDSCAPING WORK. FOR DOMESTIC, COMMERCIAL/INDUSTRIAL APPLICATIONS, SEE "W"—WATER SECTION.

LEGEND

- ① Finish Grade.
- ② Service size galvanized steel pipe from water meter. Use Ductile Iron Pipe with flange fittings for sizes 2 1/2" and larger.
- ③ Reduced Pressure Backflow Preventer FEBCO 825Y (or approved equal) for sizes 3/4" through 2", and FEBCO 825 YD (or approved equal) for sizes 2 1/2" to 4".
- ④ Adjustable pipe saddle support, galvanized steel, suitable for supporting general piping 4" and larger.
- ⑤ Backflow preventer enclosure manufactured by Lemeur (or approved equal). Enclosure shall be single-swing type for backflow unit sizes 3/4" through 2" and double-swing type ("clam shell") for backflow unit sizes 2 1/2" through 4". Frame shall be 1 1/2" X 1 1/2" X 3/16" steel angle with 1 1/2" #9 expanded metal. Install as shown on plans.
the plan.
- ⑥ 6" concrete enclosure pad, size as shown on the plan.
- ⑦ Service size galvanized steel pipe riser with a minimum of two (2) unions for threaded connections (sizes 3/4" to 2").
- ⑧ 90° elbow, flanged or threaded, wrapped with 10 mil PVC tape.
- ⑨ Concrete thrust block for service size 4" or larger (see detail W-12).
- ⑩ Water meter and service by others (see detail W-1)
- ⑪ Two coats of enamel. Color specified per approved plans.

NOTES:

- 1. Gate valves and test cocks are required.
- 2. Water supply— no connections or tees are allowed between the water meter and backflow unit.
- 3. Protection from freeze damage may be required in exposed areas.
- 4. Device must be accessible for testing and maintenance. Prior to activation, call 776-7333 for backflow device inspection.
- 5. Wrap buried galvanized pipe with 3M tape or approved equal.



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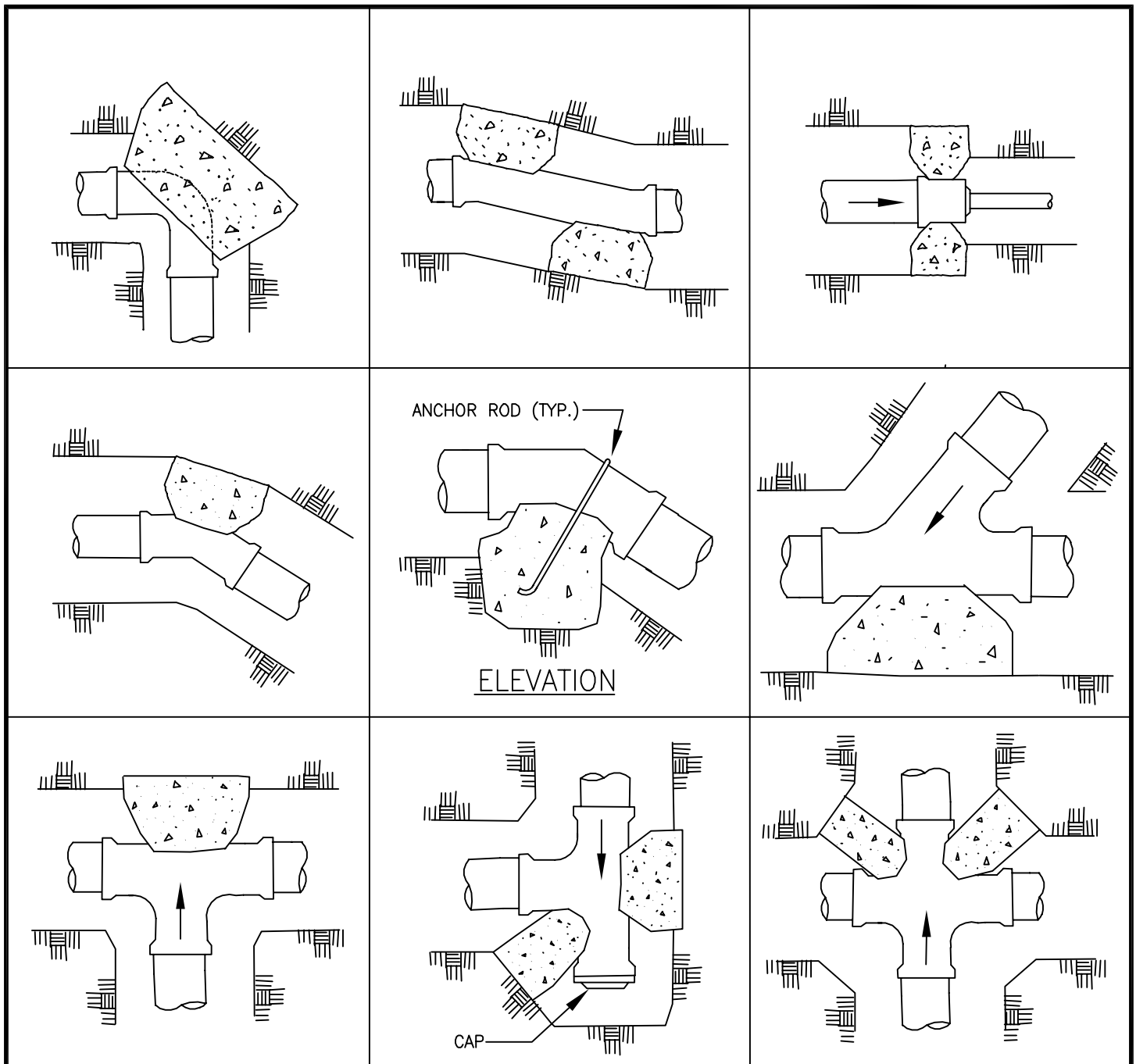
8/1/97
DATE

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LANDSCAPE BACKFLOW
PREVENTER
LEGEND AND NOTES

DRAWING
NO.

L-13



NOTES:

1. ALL PLASTIC PIPE TO BE INSTALLED ACCORDING TO THESE DETAILS UNLESS OTHERWISE NOTED OR DETAILED.
2. THE PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE 420-C-2000 CONCRETE.
3. ALL ANCHOR RODS SHALL BE GALVANIZED STEEL, MINIMUM 1/2" DIAMETER, WRAPPED AROUND PIPE.
4. SIZE OF THRUST BLOCKS SHALL BE SPECIFIED ON PLANS.
5. THRUST BLOCKS SHALL BE USED FOR PLASTIC PIPES WITH 3" DIAMETER OR LARGER.
6. FLOW DIRECTION INDICATED BY
7. ALL VIEWS ARE PLAN VIEW UNLESS OTHERWISE SHOWN.



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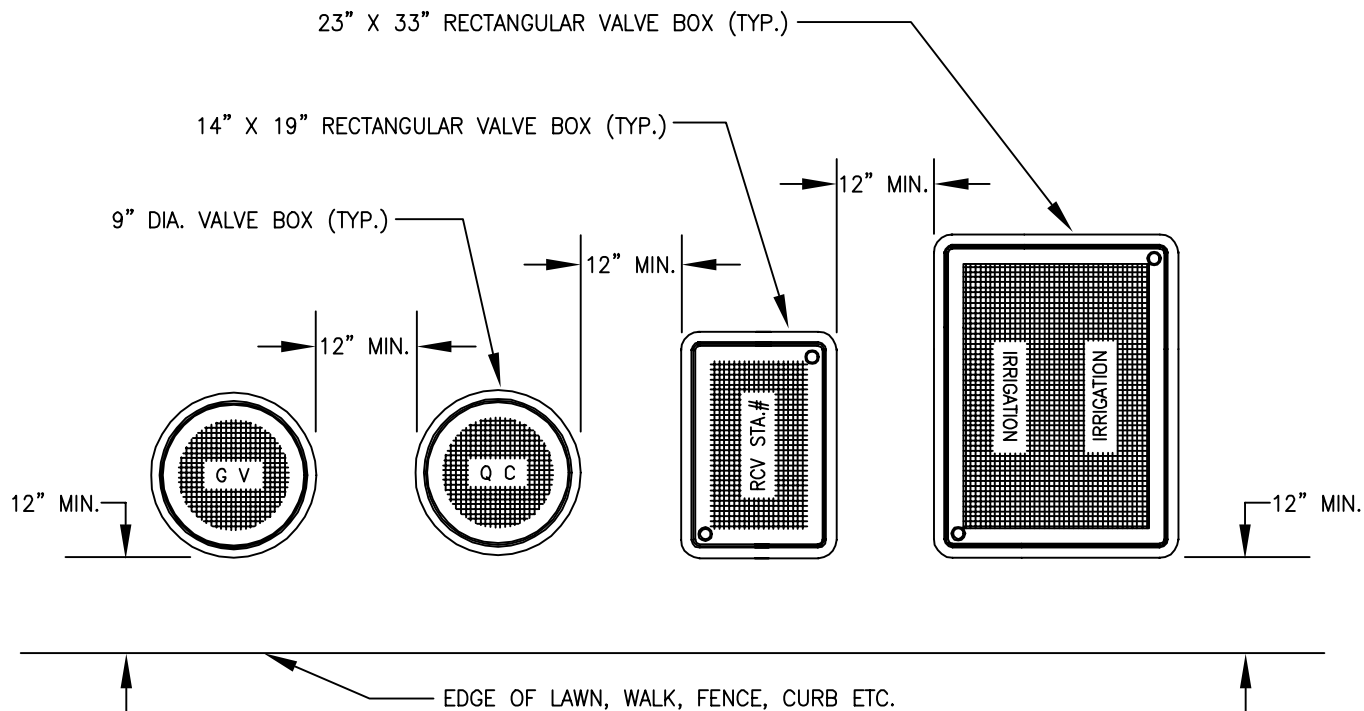
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THRUST BLOCKS FOR PLASTIC PIPES

DRAWING
NO.

L-14



NOTES:

1. CENTER BOX OVER REMOTE CONTROL VALVE TO FACILITATE SERVICING VALVE.
2. SET BOXES 1" ABOVE FINISH GRADE OR MULCH COVER IN GROUND COVER / SHRUB AREA AND FLUSH WITH FINISH GRADE IN TURF AREAS.
3. SET RCV AND VALVE BOX ASSEMBLY IN GROUND COVER / SHRUB AREA WHERE POSSIBLE. INSTALL IN LAWN AREA ONLY IF GROUND COVER DOES NOT EXIST ADJACENT TO LAWN.
4. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.
5. AVOID COMPACTING SOIL AROUND AROUND VALVE BOX EDGES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOX SIDES.
6. ALL BOXES SHALL BE "CARSON" OR APPROVED EQUAL, AND BE EQUIPPED WITH BOLT DOWN LIDS.
7. ALL VALVE BOX LIDS SHALL IDENTIFY EQUIPMENT CONTAINED IN BOX BY MOLDING OR BRASS TAG TO LID AS FOLLOWS:
 GATE VALVE – "G.V."
 QUICK COUPLER – "Q.C."
 REMOTE CONTROL VALVE – "R.C.V. STA. #___"
 MISCELANEOUS ELECTRICAL EQUIPMENT – "ELECTRICAL"
 MISCELANEOUS IRRIGATION EQUIPMENT – "IRRIGATION"



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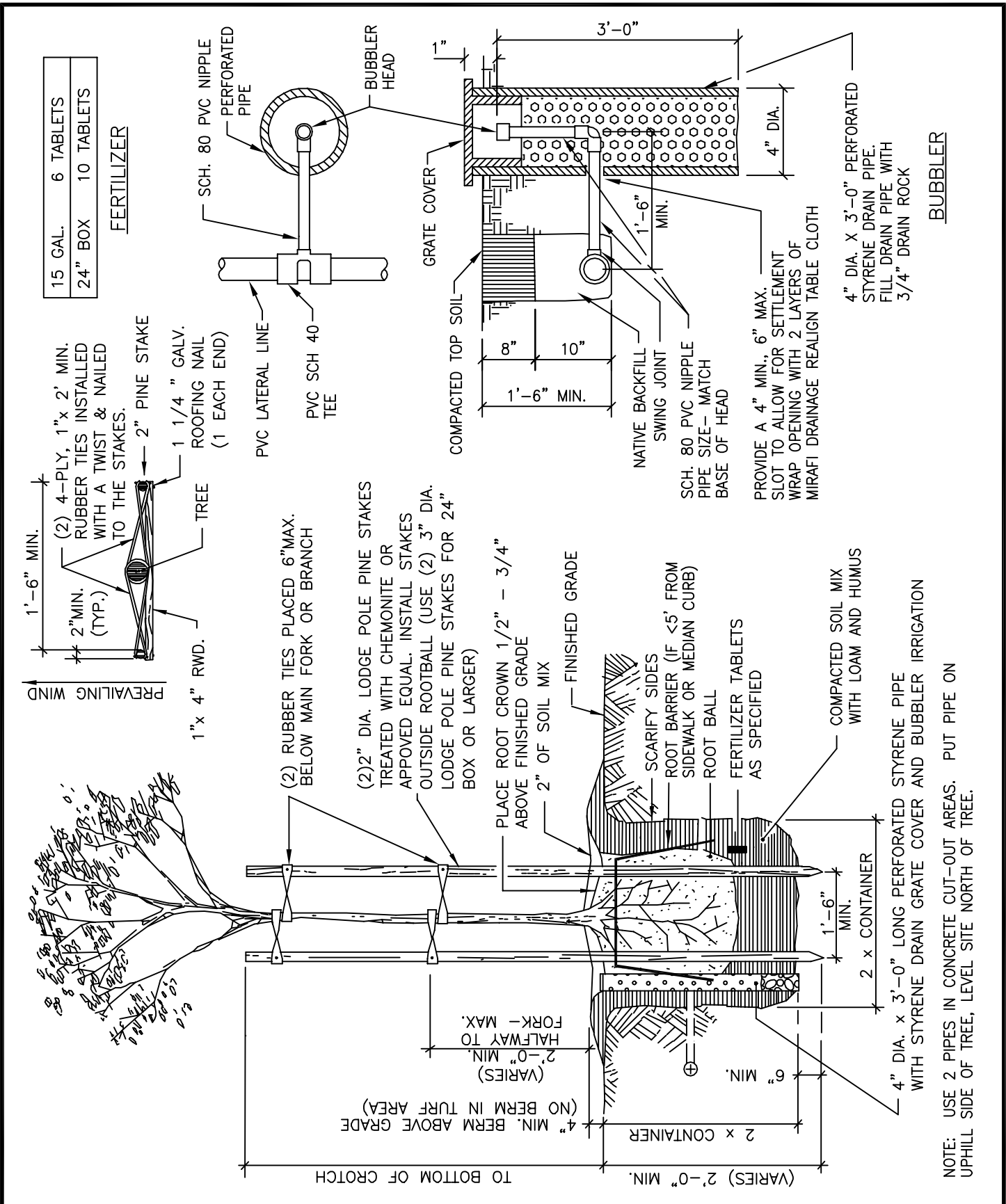
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VALVE BOX LOCATION

DRAWING
NO.

L-15



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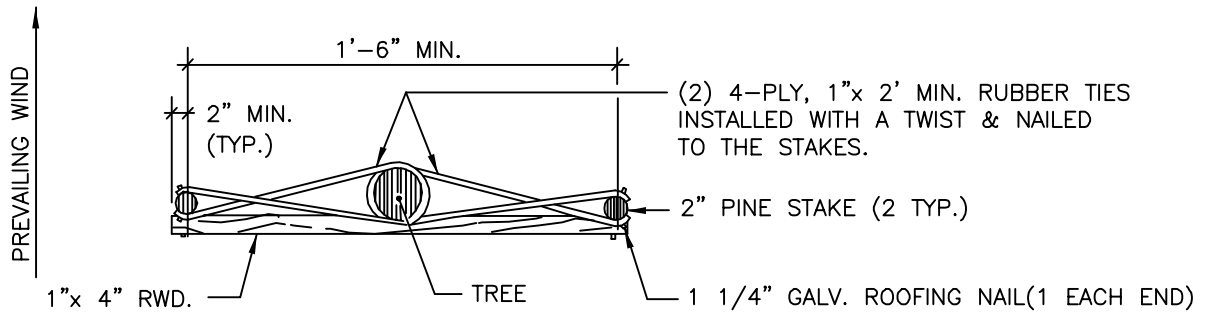
8/1/97
DATE

REvised

STANDARD TREE PLANTING & STAKING WITH WITH BUBBLER IRRIGATION

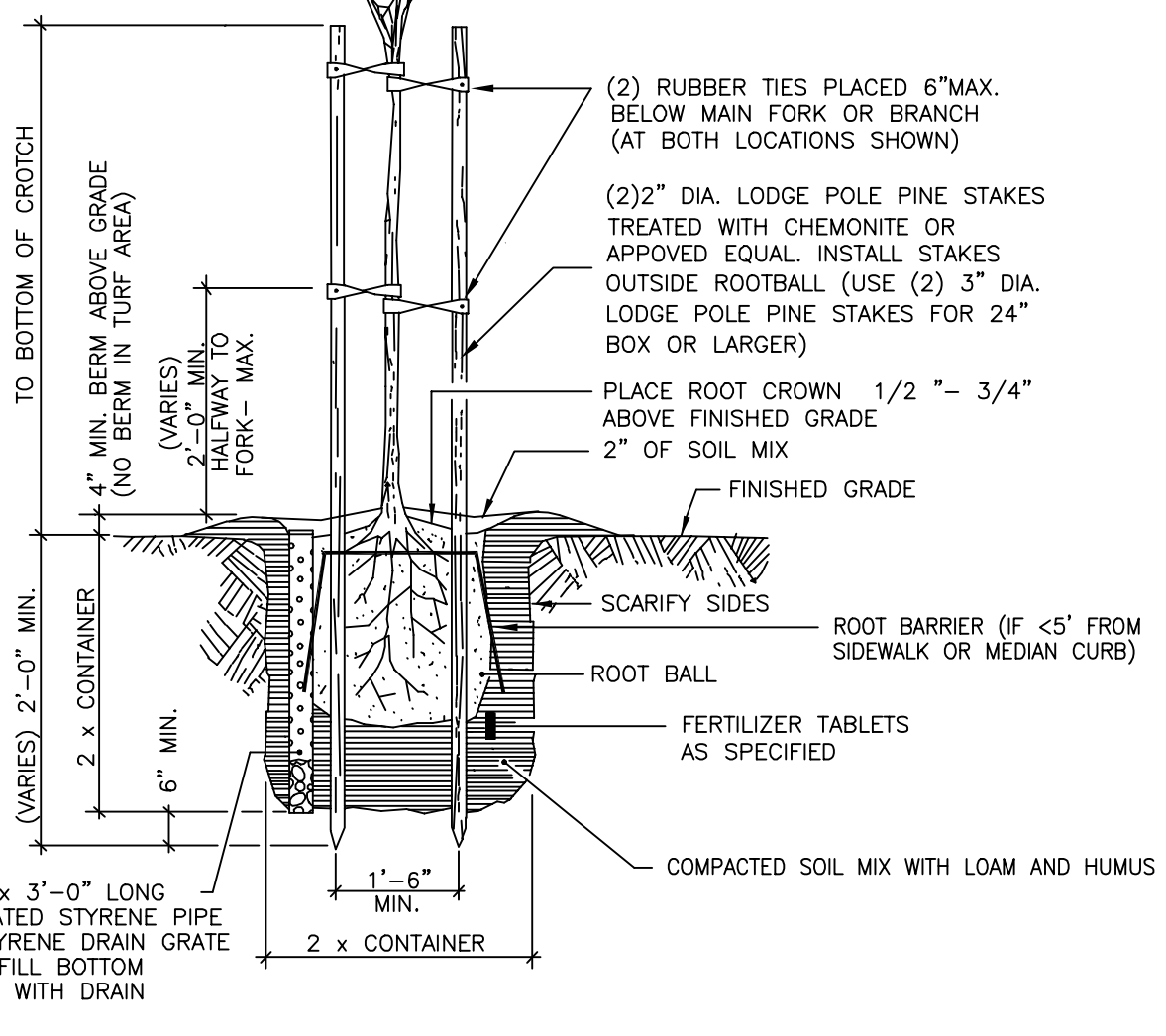
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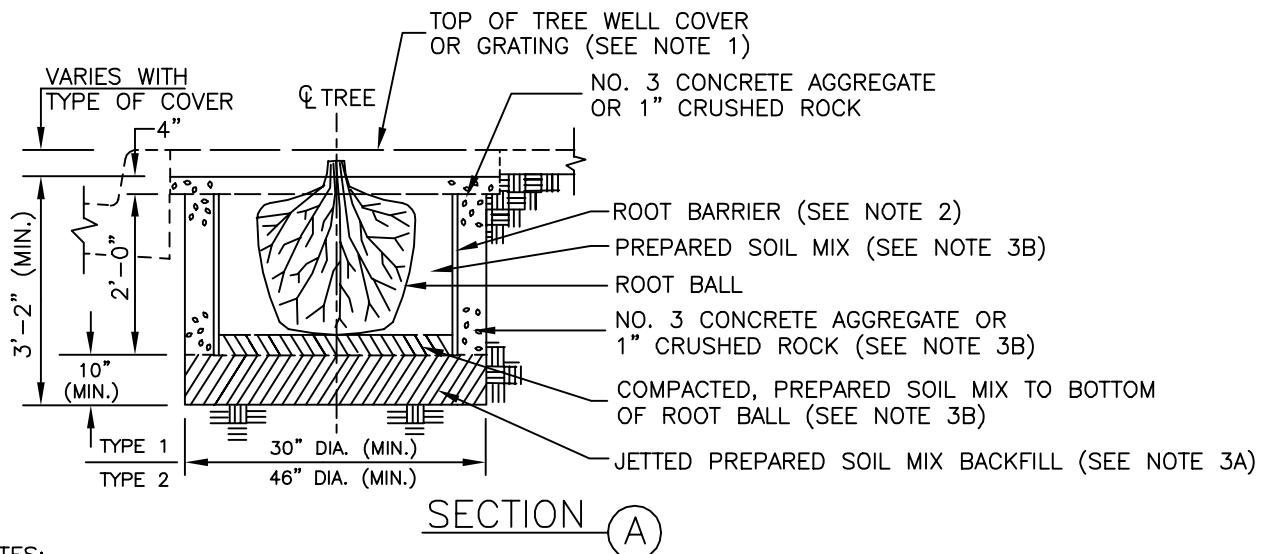
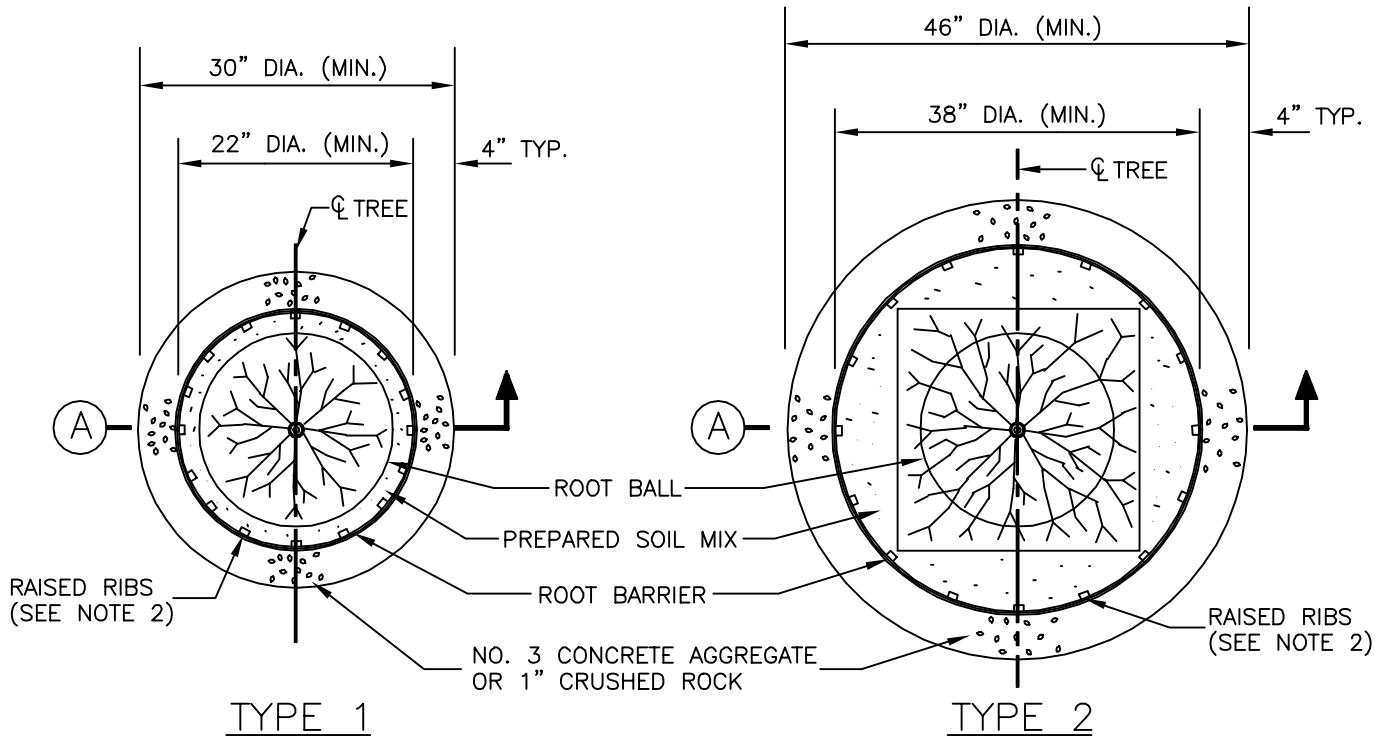
L-16



15 GAL.	6 TABLETS
24" BOX	10 TABLETS

FERTILIZER





NOTES:

1. SEE PROJECT PLANS FOR TYPE OF TREE WELL COVER OR TREE GUARD AND GRATING TO BE USED.
2. ROOT BARRIER SHALL BE FABRICATED FROM A HIGH DENSITY AND HIGH IMPACT PLASTIC SUCH AS POLYVINYL CHLORIDE, ABS OR POLYETHYLENE AND HAVE A MINIMUM THICKNESS OF 0.06 INCH. THE PLASTIC SHALL HAVE 1-2-3-4 INCH HIGH RAISED VERTICAL RIBS ON THE INNER SURFACE SPACED NOT MORE THAN 6-8 INCHES APART (SUBMITTAL AND APPROVAL REQUIRED).
3. PLANTING SHALL CONFORM TO JOB SPECIFICATIONS EXCEPT THAT:
 - A. THE LOWER 10" OF THE EXCAVATION SHALL BE BACKFILLED WITH PREPARED SOIL MIX AND JETTED PRIOR TO PLACING THE ROOT BARRIER AND THE NO. 3 CONCRETE AGGREGATE OR 1" CRUSHED ROCK.
 - B. PREPARED SOIL MIX SHALL BE PLACED IN THE PLANTING HOLE AND COMPACTED TO BOTTOM OF ROOT BALL ELEVATION PRIOR TO PRECEEDING WITH TREE PLANTING.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

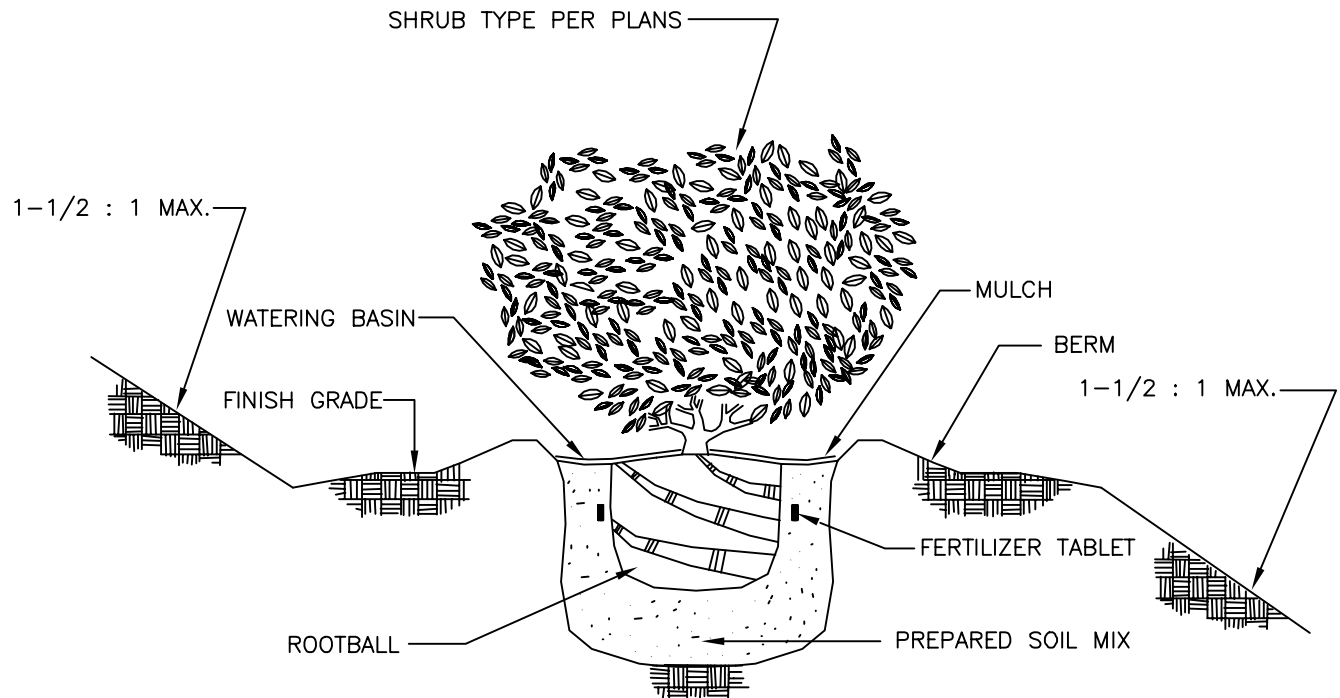
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TREE ROOT BARRIER

DRAWING
NO.

L-18



NOTES:

1. SET CROWN 1-1/2" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT.
2. WELL DEVELOPED SHRUB ROOTBALL; LIGHTLY SCARIFY PERIMETER.
3. SLOW RELEASE FERTIZER TABLET AS PERSPECIFICATIONS.
4. 4" HIGH BERM TEMPORARY WATER BASIN. INSIDE DIAMETER TO EQUAL ROOTBALL DIAMETER.
5. PLANTING HOLE; TWO TIMES DIAMETER AND DEPTH OF SHRUB ROOTBALL. SCARIFY SIDES AND BOTTOM.
6. MULCH AS PER SPECIFICATIONS.
7. BACKFILL MIXTURE AS PER SPECIFICATIONS.



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SHRUB PLANTING

DRAWING
NO.

L-19

PROHIBITED STREET TREES

Botanical Name

Common Name

Acacia
Ailanthus Glandulosa
Ceratonia Siliqua

Cinnamomum Camphora
Conifers
Eucalyptus
Fruit Trees

Juglans California

Juglans Hidsi

Juglans Regia
Liquidambar Styraciflua
Magnolia Grandiflora
Palms
Pinus Radiata

Platanus Orientalis
Olea Evropaea
Populus (Popular Tree)
Robina Pseudoacaia
Sequoia Gigantea
Ulmus Americana

All Species
Trees of Heaven
St. John's Bread
(Carob Tree)
Camphor Tree
All Species
All Species
All Fruit Bearing
Species
California Black
Walnut
American Black
Walnut
English Walnut
American Sweet Gum
Southern Magnolia
All Species
Monterey Pines
(All Species)
European Plane Tree
Olive
All Species
Black Locust
Redwood
American Elm



City of Morgan Hill
Public Works Department

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8/6/98
DATE

REVISED

PROHIBITED TREE LIST

DRAWING
NO.

L-20

APPROVED TREES

All trees planted within the Public Right of Way, and in publicly maintained districts, shall be planted in accordance with the City of Morgan Hill Street Tree Master Plan. All trees shall be installed in accordance with the applicable drawings of this section. Copies of the Street Tree Master Plan may be obtained from the City of Morgan Hill Community Development Department.

GROUND COVERS

Botanical Name

Common Name

May be used in any parking strip:

Adjuga Reptans
Cerastium Tomentosum
Dichondra Carlinensis
Festuca Ovina Glauca
Gaultheria Procumbens
Hedera
Hypericum Calycinum
Sedum Spathulifolium
Thymus Serpyllum

Carpet Bugle
Snow in Summer
Dichondra
Blue Fescue
Wintergreen
Hahns Ivy
Aaron's Beard
Stonecrop
Dichondra

UNEVEN TEXTURED GROUND COVERS

Botanical Name

Common Name

J.S. Tamariscifolia
J. Conferta
J. Squmata
Pelargonium Peltatum

Juniper Tams
Shore Juniper
Juniper Postrata
Ivy Geranium

GROUND COVERS PROHIBITED

All shrubs which grow to a natural height of more than 18" shall be removed at the contractor and/ or owners expense.

This list is not intended to be complete, nor is it to be final. Final selections of species shall be made by the City of Morgan Hill Public Works Superintendent, upon considering location, mature size of tree and general habitat of growth.

Trees and Ground Covers not listed, as well as deviations in maximum spacing, must be approved by the Public Works Superintendent.



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Public Works Department

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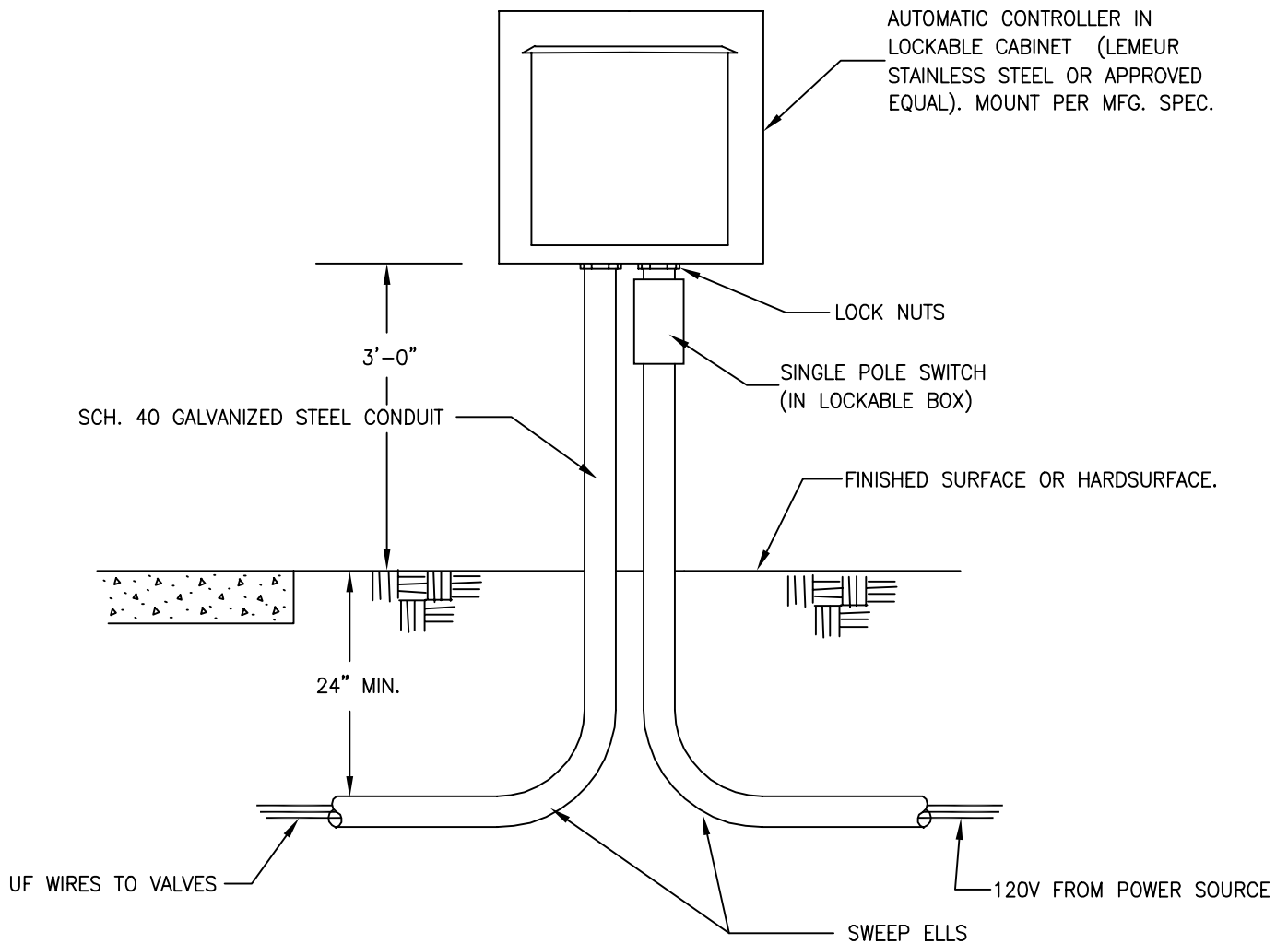
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APPROVED TREES
AND
GROUND COVERS

DRAWING
NO.

L-21



NOTES:

1. IRRITROL MC+ (SIZE AS REQUIRED) CONTROLLER NOT SHOWN.
- 2.. SEE "ELECTRICAL SECTION" FOR POWER SOURCE CONNECTIONS.



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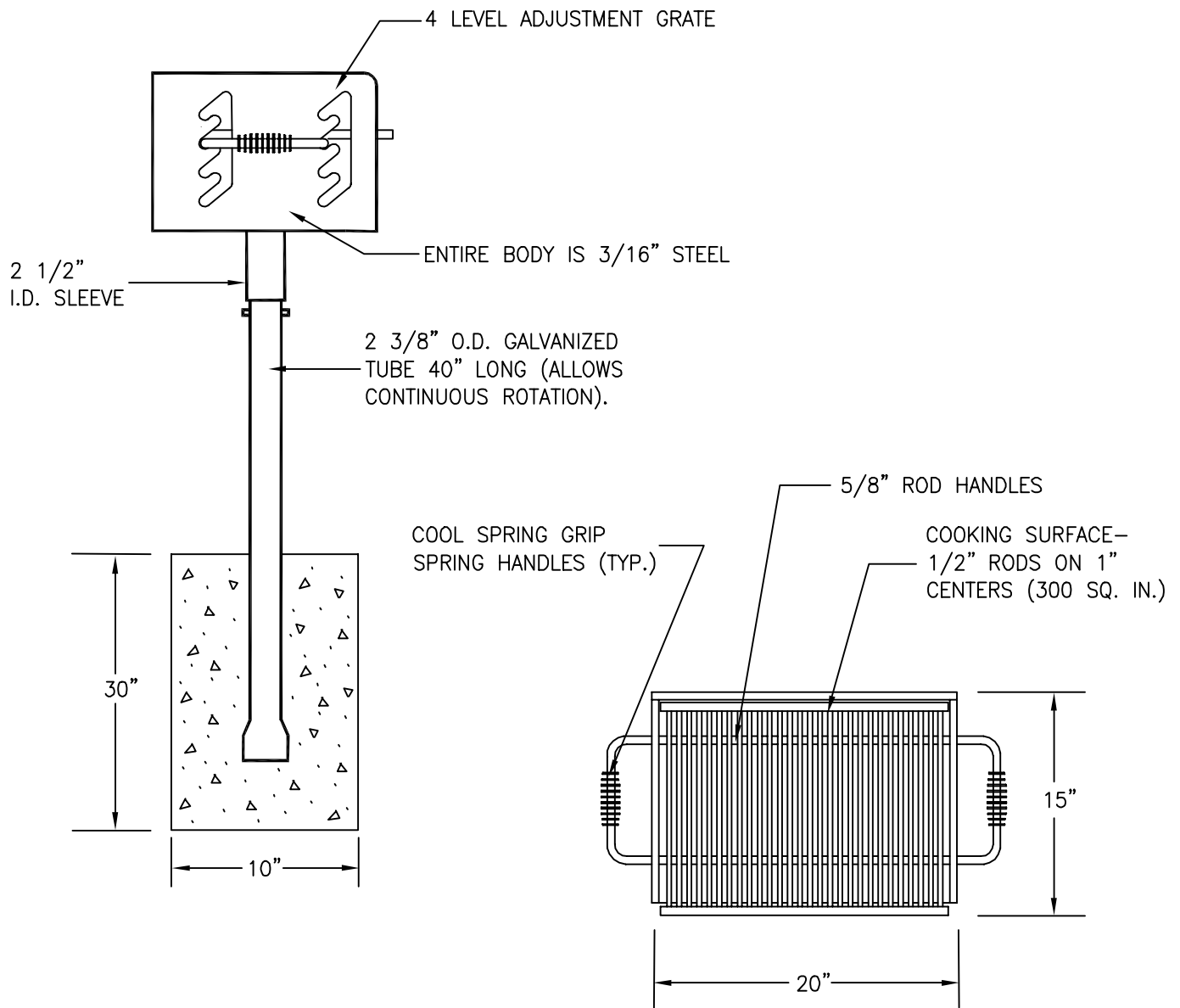
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IRRIGATION CONTROLLER WALL MOUNT

DRAWING
NO.

L-23



NOTES:

1. SIZE OF FOOTING IS A SUGGESTION ONLY, CHECK WITH MANUFACTURER AND/OR PROJECT SOILS REPORT.
2. FINISH IS NON-TOXIC HEAT RESISTANT BLACK ENAMEL.
3. MODEL SHOWN IS "KAY PARK #SB16" (SB16G FOR GALVANIZED PEDESTAL) SUBMITTAL AND APPROVAL REQUIRED FOR ALL EQUALS.



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Public Works Department

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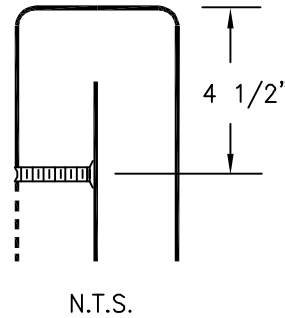
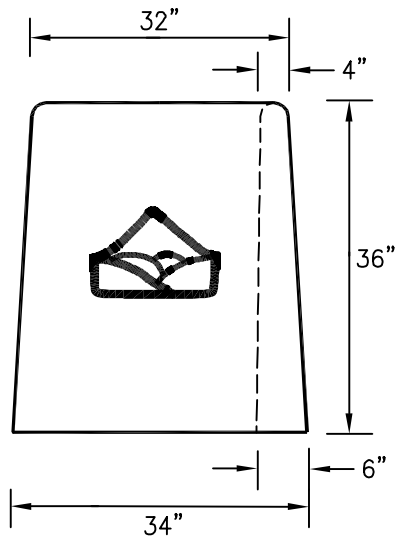
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CHARCOAL RECEPTACLE

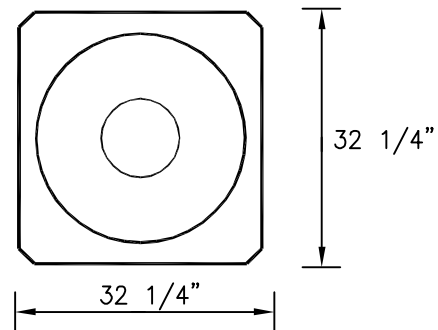
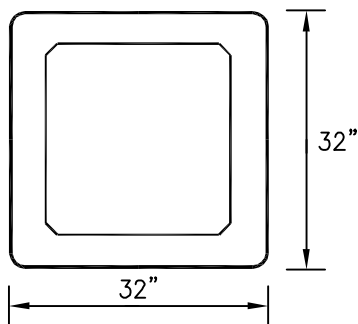
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L-24



BRACKET ATTACHMENT POINTS (4)

1/2" LONGNUT MOLDED INTO THE CONCRETE AND WELDED TO THE REBAR.



14 GAUGE METAL POWDER COATED LID

NOTES:

1. MINIMUM THICKNESS OF ALL AREAS TO BE 4".
2. MINIMUM WEIGHT TO BE 1775 LBS.
3. COLORING AGENTS ARE TO BE PURE MINERAL OXIDES AND SHALL BE MIXED INTEGRALLY WITH CEMENT.
4. CONCRETE MIX DESIGN TO INCLUDE SIX SACKS PORTLAND CEMENT PER YARD WITH MAXIMUM ROCK SIZE OF 3/4" REINFORCED WITH #4 AND #5 REBAR GRID. CURED CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 5,000 P.S.I.
5. ALL FORMED SURFACES AND EDGES SHALL BE FULLY ROUNDED AND SMOOTHED FINISHED. FINISH OF ALL SURFACES TO HAVE A CONCRETE GRAFFITI-RESISTANT SEALER APPLIED.
6. BRACKET INSTALLED TO ACCEPT PLASTIC BAG INSERT.
7. MODEL SHOWN: "OUTDOOR CREATIONS #300.WR (NEW MODEL #502)". SUBMITTAL AND APPROVAL REQUIRED FOR ALL EQUALS.
8. SPECIFICATIONS FOR LOGO AVAILABLE UPON REQUEST FROM THE CITY OF MORGAN HILL DEPARTMENT OF PUBLIC WORKS AT 408-776-7333.



City of Morgan Hill
Public Works Department

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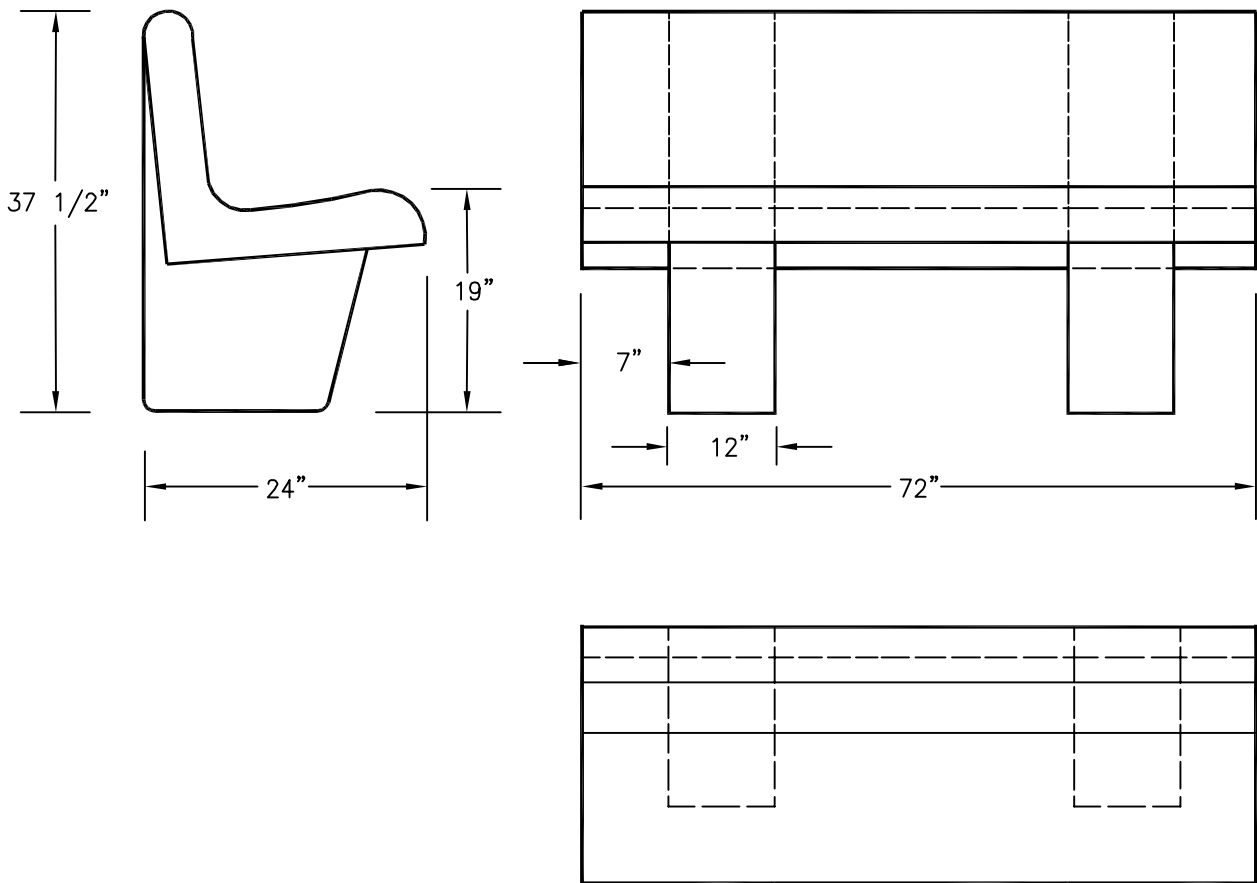
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WASTE RECEPTACLE

DRAWING
NO.

L-25



NOTES:

1. MINIMUM THICKNESS OF ALL AREAS TO BE 4".
2. MINIMUM WEIGHT TO BE 1800 LBS.
3. BENCH IS CAST IN ONE INTREGRAL PIECE. NO ASSEMBLY REQUIRED.
4. COLORING AGENTS ARE TO BE PURE MINERAL OXIDES AND SHALL BE MIXED INTEGRALLY WITH CEMENT.
5. CONCRETE MIX DESIGN TO INCLUDE SIX SACKS PORTLAND CEMENT PER YARD WITH MAXIMUM ROCK SIZE OF 3/4" REINFORCED WITH #4 AND #5 REBAR GRID. CURED CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 P.S.I.
6. ALL FORMED SURFACES AND EDGES SHALL BE FULLY ROUNDED AND SMOOTHED FINISHED. FINISH OF ALL SURFACES TO HAVE A CONCRETE GRAFFITI-RESISTANT SEALER APPLIED.
7. MODEL SHOWN: "OUTDOOR CREATIONS #407". SUBMITTAL AND APPROVAL REQUIRED FOR ALL EQUALS.



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Public Works Department

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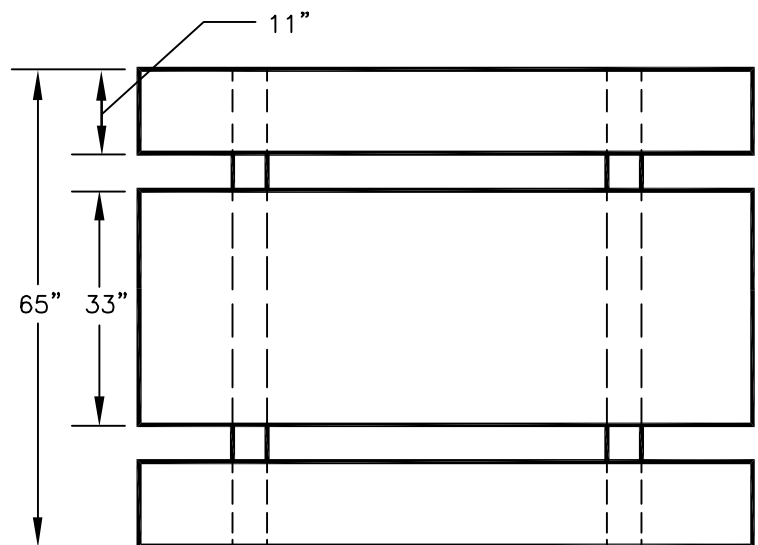
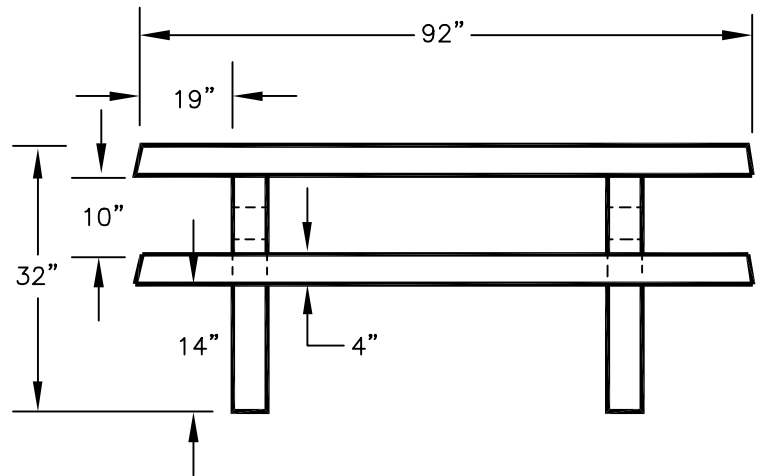
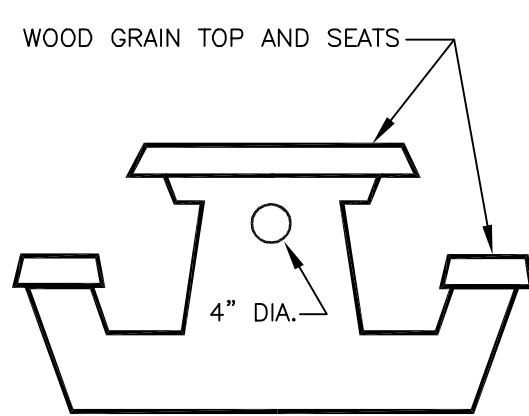
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REVISED

CONTOUR BENCH

DRAWING
NO.

L-26



NOTES:

1. MINIMUM THICKNESS OF ALL AREAS TO BE 4".
2. MINIMUM WEIGHT TO BE 2450 LBS.
3. PICNIC TABLE TOP, BENCHES, BENCH AND TABLE SUPPORTS CAST IN ONE INTEGRAL PIECE. NO ASSEMBLY REQUIRED.
4. COLORING AGENTS ARE TO BE PURE MINERAL OXIDES AND SHALL BE MIXED INTEGRALLY WITH CEMENT.
5. CONCRETE MIX DESIGN TO INCLUDE SIX SACKS PORTLAND CEMENT PER YARD WITH MAXIMUM ROCK SIZE OF 3/4" REINFORCED WITH #4 AND #5 REBAR GRID. CURED CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 5,000 P.S.I..
6. ALL FORMED SURFACES AND EDGES SHALL BE FULLY ROUNDED AND SMOOTHED FINISHED. FINISH OF ALL SURFACES TO HAVE A CONCRETE GRAFFITI-RESISTANT SEALER APPLIED.
7. WOOD GRAIN AND ROCK TEXTURE MOLDED INTO CONCRETE SURFACE.
8. MODEL SHOWN: "OUTDOOR CREATIONS #104.FSS (FOREST SERIES). SUBMITTAL AND APPROVAL REQUIRED FOR ALL EQUALS.



City of Morgan Hill
Public Works Department

Jim Oshroff
CITY ENGINEER

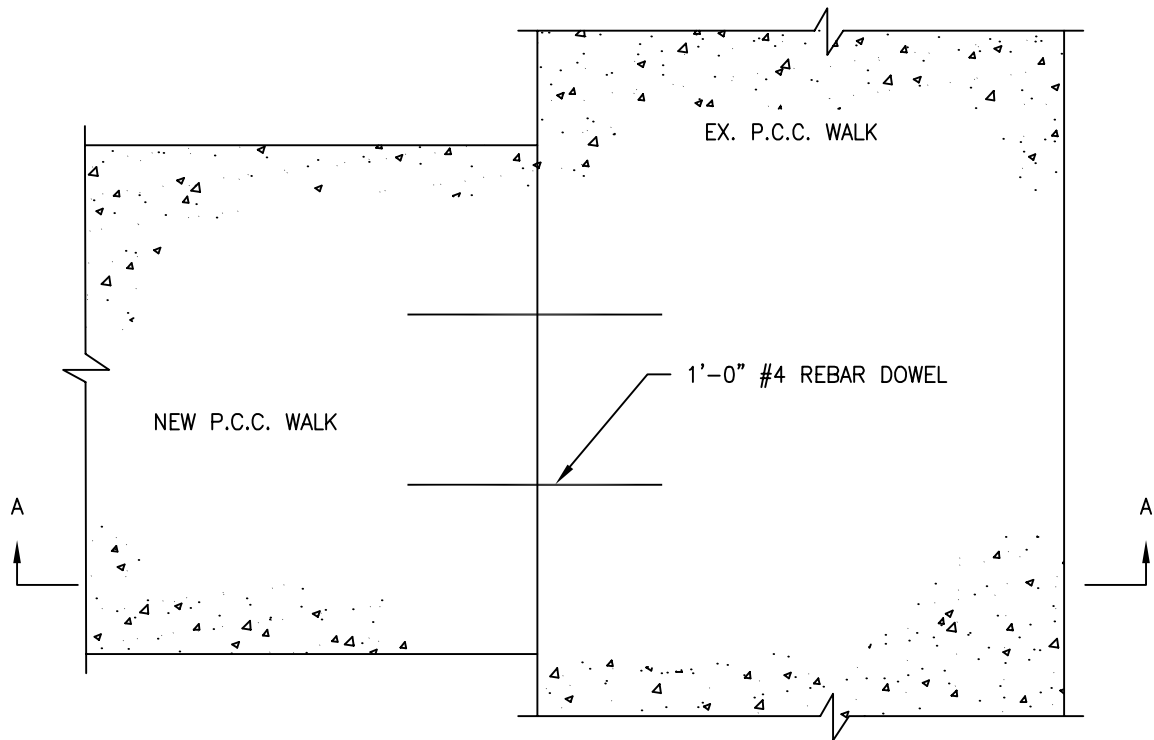
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PICNIC TABLE

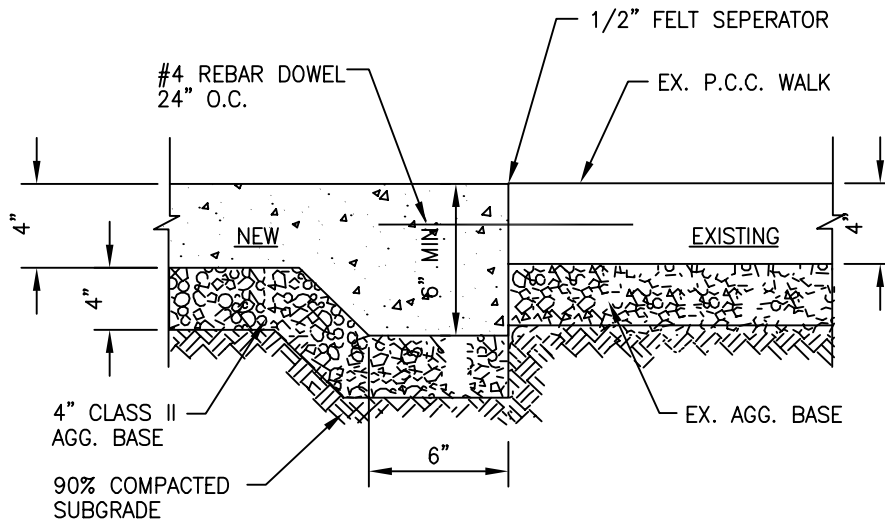
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L-27



NOTE: 1. DRILL & EPOXY DOWEL INTO EX. P.C.C. & GREASE OTHER HALF BEFORE POURING.

PLAN



SECTION A-A



City of Morgan Hill
Public Works Department

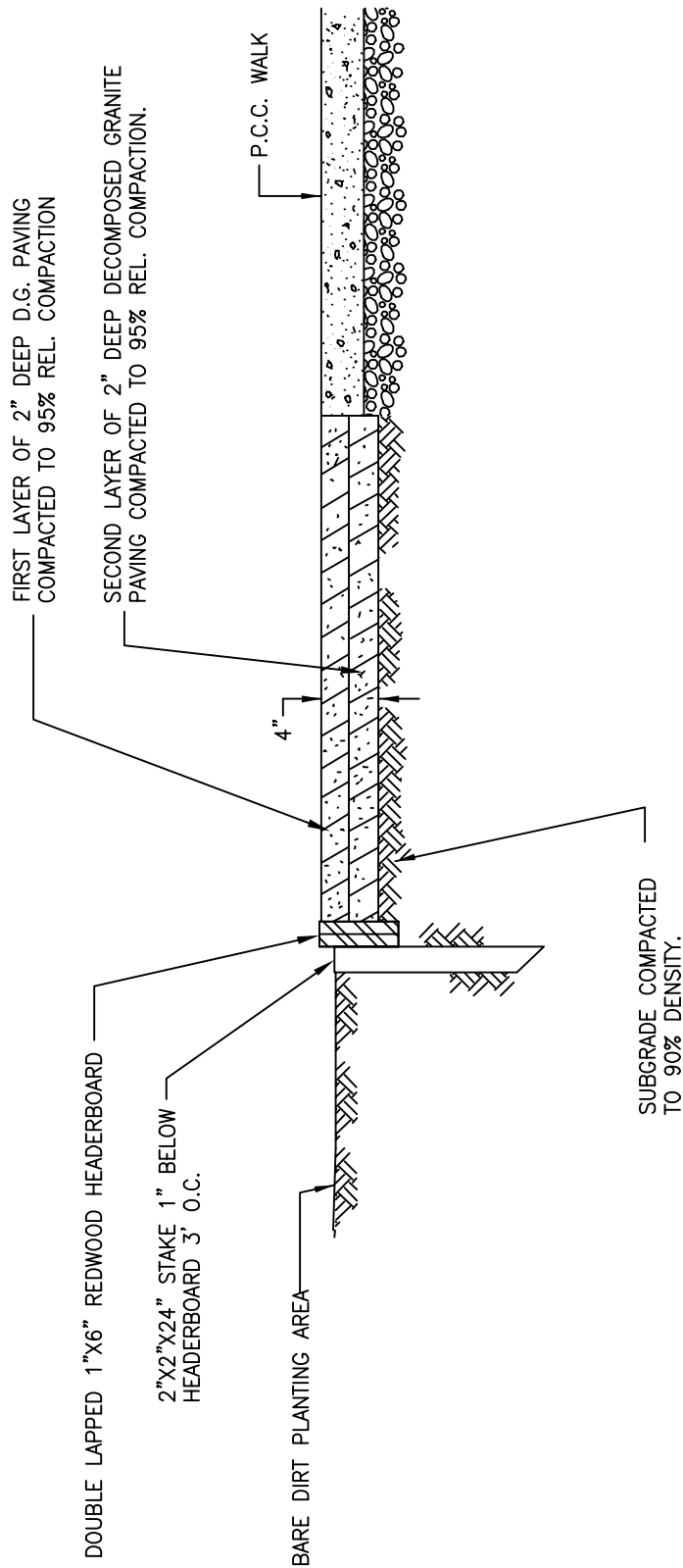
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8/6/98
DATE

REVISED

P.C.C. WALKWAY NEW WALK
TO EXISTING CONNECTION

DRAWING
NO.
L-28



NOTE: FIRST LAYER OF D.G. SHALL BE COMPACTED BEFORE INSTALLATION OF SECOND LAYER.



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Public Works Department

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8/6/98
DATE

REvised

DECOMPOSED GRANITE PAVING

DRAWING
NO.
L-29

ELECTRICAL SECTION

GENERAL

All electrical equipment, materials, and workmanship shall be in accordance with the Standard Specifications, State of California, Department of Transportation, Caltrans (CSS), the National Electrical Manufacturers Association (NEMA), the Underwriters' Laboratories Inc. (UL), the Electrical Testing Laboratories (ETL), the National Electrical Testing Association (NETA), the Electronic Industries Association (EIA), the National Electric Code (NEC), the American Society for Testing and Materials (ASTM), where applicable and and except as modified herein.

ELECTROLIERS

(a) Electroliers. Electroliers shall consist of a 30' single arm galvanized steel pole (standard) equivalent to VALMONT DS30-8.0A300-8S-GV, an 8' mast arm, and a "cobra head" type 100W or 150W high pressure sodium luminaire, "GE- Model MZARXXSON2GMS21" or approved equal, furnished and installed in accordance with the City of Morgan Hill Standard Details for Construction. For mast arms longer than 8', the pole shall be equivalent to CALTRANS Type 15. For electrolier spacing and luminaire wattage requirement, see Detail E-16.

(b) Conduit. All conduit shall be 1 1/2" Schedule 40 Polyvinyl Chloride (PVC), and conform to ASTM D 2241. Rigid conduit may be required by the City Engineer.

(c) Trenching for Conduits. Conduit trenches shall be dug to 24" min. depth. Conduit shall be placed directly behind the back of curb (6" Max., from back of curb to center of conduit). In cases where there will be an attached sidewalk, the backfill material shall be sand with the concrete sidewalk poured over the trench location. In cases where there will be a detached sidewalk, the conduit shall be covered by 3 inches of concrete. For electrolier conduit designed to occupy PG&E's joint trench, see paragraph h.

(d) Conductors. All conductors shall be #8 AWG type THW (#10 AWG allowed in pole only) unless otherwise specified, and be UL listed for 600V operation. All wire shall be stranded copper in accordance with ASTM B 3 and B 8. All conductor insulation shall be standard type THW in accordance with ASTM D 2219 and ASTM D 2220.

(e) Fuses. Fuses shall be standard midget ferrule type, with "Non-Time Delay" feature, and shall be 13/22" x 1 1/2". All lighting service conductors shall be fused at the service connection point (30 AMP Max) and at all electroliers with a 10 Amp fuse accesible from the hand hole opening on the standard.

(f) Service Connection Point. Pull boxes for streetlight service connection points shall be installed adjacent to P.G.&E. secondary box designated for service connection.

(g) Pull Boxes. Pull boxes shall be precast of reinforced portland cement concrete in accordance with CSS Section 86-2.06A. Any pull box made of non portland cement concrete material shall conform to ASTM D 635. All individual pull boxes for electroliers shall be placed directly in front of the standard and parallel to the face of curb.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

6/8/00
REVISED

GENERAL NOTES

DRAWING
NO.

E-I

DEVELOPER INSTALL OPTION

(h) Electrolier Conduit Location. If developer elects to install the substructure for PG&E, Cable, and Telephone ("Private Utilities"), electrolier conduit may occupy the joint trench only upon approval the City Engineer. Otherwise, electrolier conduit shall be located and installed per the Electrical Section General Notes and standard details E-1 and E-2.

(i) Plan Submittal Developer shall submit to the Public Works Department two (2) sets of a substructure plan for review after PG&E review and approval. The Public Works Department shall only review the plan for possible conflicts with existing "Public Utilities" and approved subdivision improvements. Changes to the plans shall be directed as they relate to utility conflicts and all matters related to electroliers. It is developer's responsibility to ensure that the substructure plans meet PG&E's, GTE's and Falcon Cable's standards. The plans shall contain, as a minimum, the following information:

(1) STREET LIGHTING PLAN— shows all proposed electroliers, boxes and conduit related to the subdivision's street lighting system as well as their location in respects to sidewalks, driveway approaches and handicap ramps.

(2) JOINT TRENCH PLAN— using the "Overall Utility Plan" as the background, shows joint trench locations, electroliers, existing and proposed "Public" and "Private" utilities.

(3) DETAILS SHEET— shows all applicable City of Morgan Hill Standard Details, to include trench restoration and backfill details.

(4) PRIMARY ELECTRICAL, GAS, CABLE & TELEPHONE PLANS— information shown per respective utility's standards.

(j) Commencement of Work Developer's substructure contractor shall not commence work until the above plans have been reviewed by the Public Works Department and an encroachment permit issued specifically for such work.



City of Morgan Hill
Public Works Department

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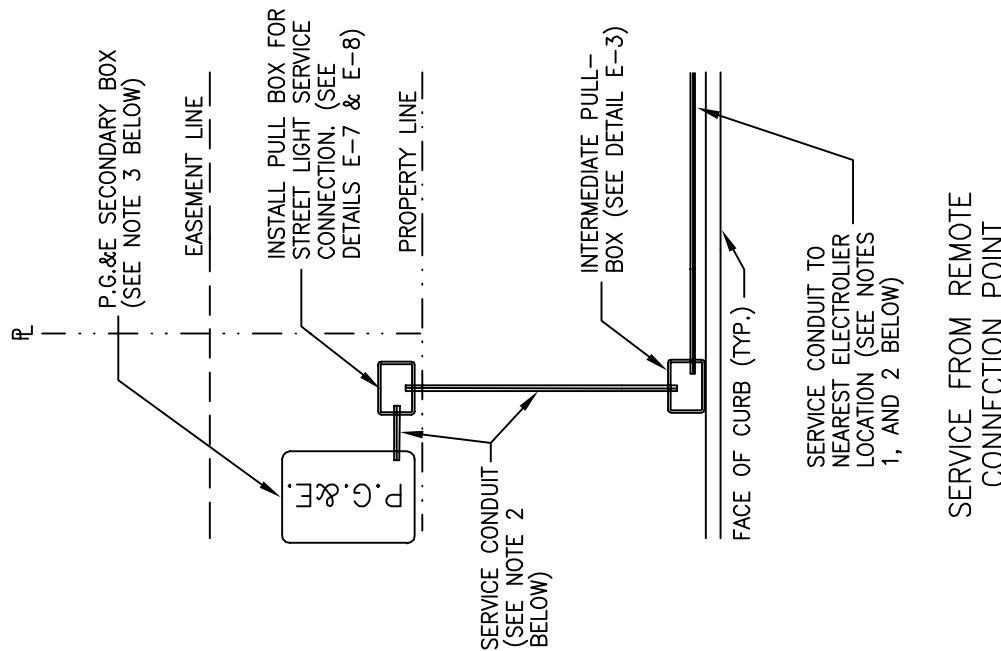
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GENERAL NOTES

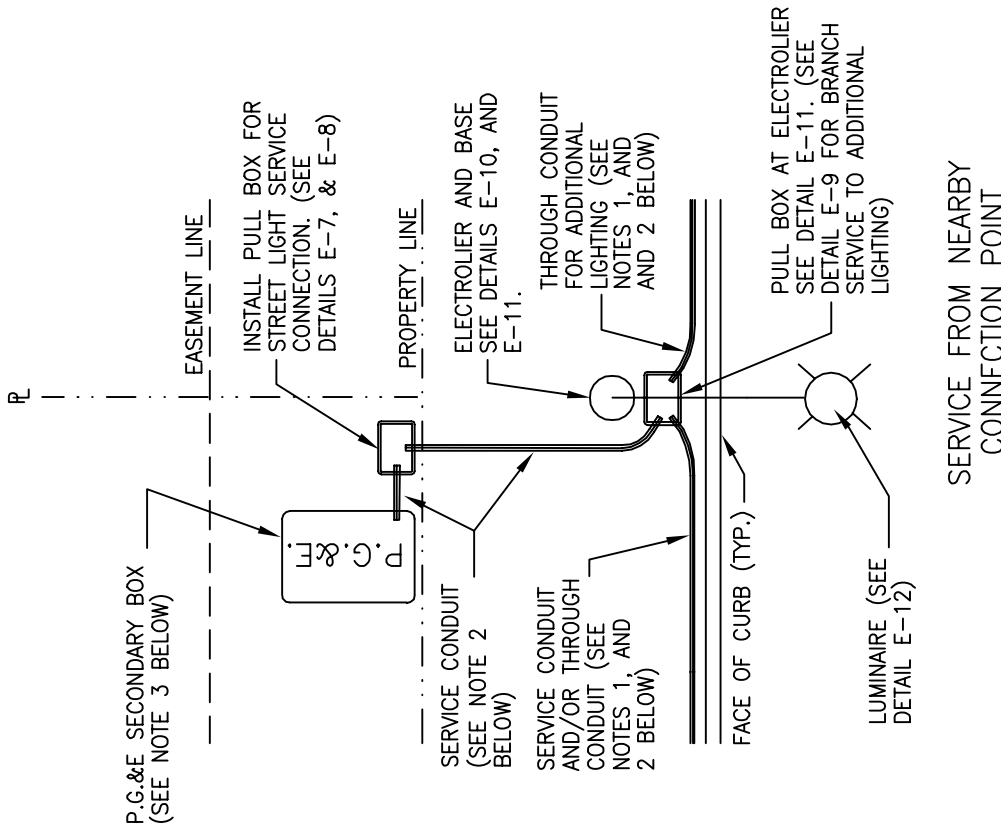
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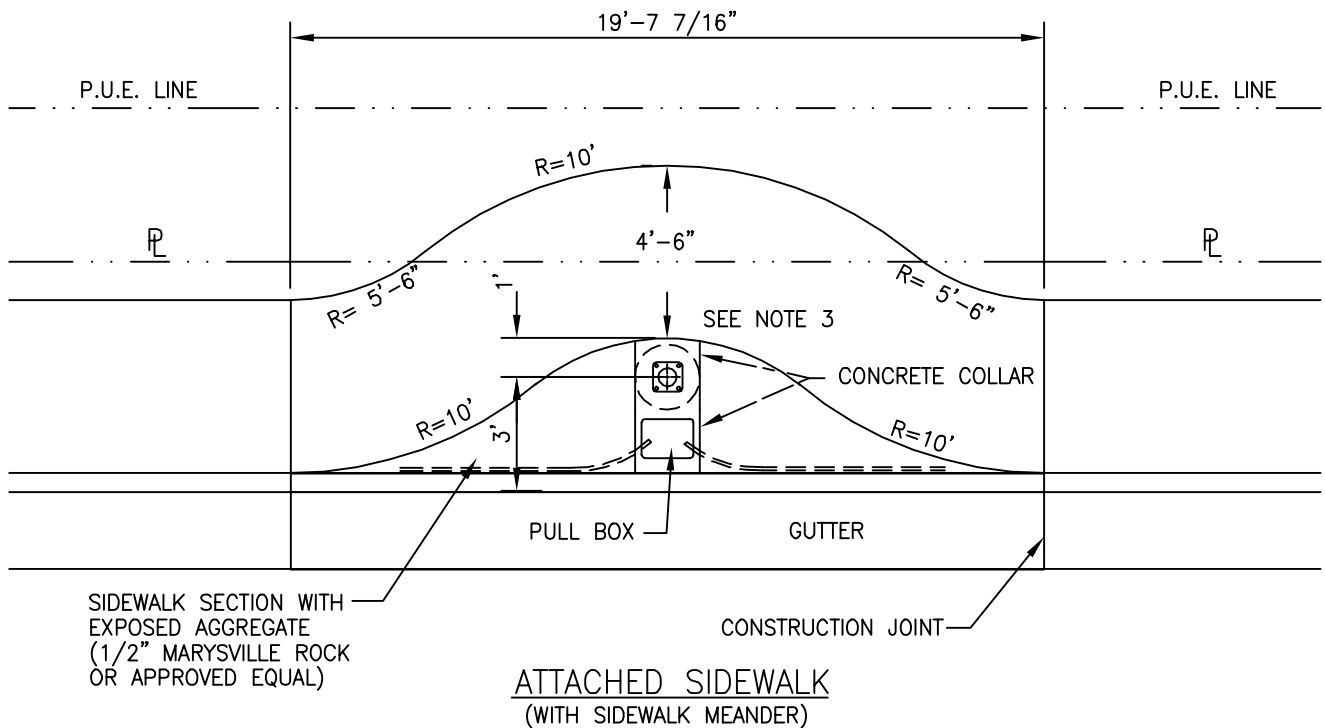
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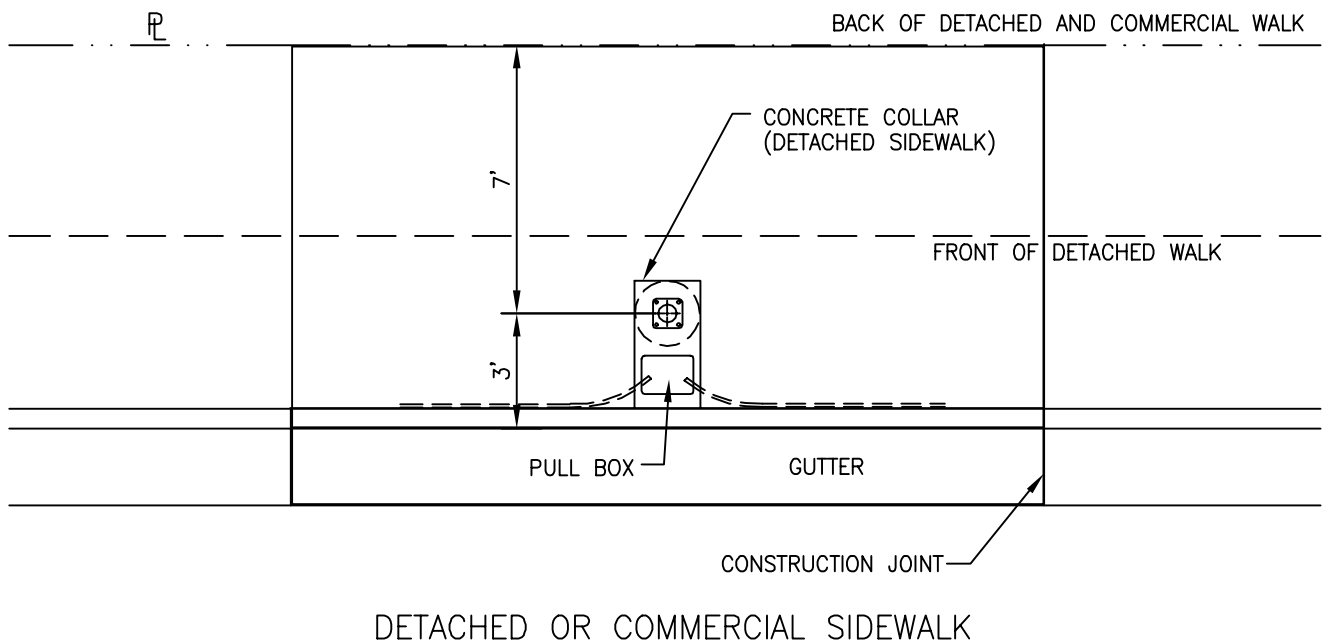
NOTES:

1. ALL CONDUIT SHALL BE LOCATED 6" BEHIND BACK OF CURB, AND INSTALLED AT A MINIMUM OF 24" DEPTH. SEE "ELECTRICAL SECTION-GENERAL NOTES", SHEET E-1, PARAGRAPH C.
2. ALL CONDUIT SHALL BE 1 1/2" SCHEDULE 40 P.V.C.. THE MAXIMUM DISTANCE BETWEEN PULL BOXES SHALL NOT EXCEED 200', AND SHALL NOT CONTAIN MORE THAN 3 (45' MAX.) BENDS.
3. STREET LIGHT SERVICE CONNECTIONS TO P.G.&E. SECONDARY SERVICE BOXES SHALL ONLY BE MADE TO P.G.&E. DESIGNATED STREET LIGHT CONNECTION POINTS. SERVICE CONDUIT FROM PULL BOX TO P.G.&E. SECONDARY BOX SHALL CONTAIN THE NECESSARY CONDUCTORS, AND AN ADDITIONAL 24" (MIN.) SLACK FOR P.G.&E..
4. THIS DETAIL IS DIAGRAMMATICAL, ACTUAL CONDITIONS MAY VARY.





- NOTES:
1. JOINT TRENCHES LOCATED BEHIND SIDEWALK SHALL FOLLOW PATH OF MEANDER AROUND ELECTROLIER (ATTACHED SIDEWALK).
 2. SEE DETAIL E-10 "ELECTROLIER & BASE", DETAIL E-11 "ELECTROLIER SERVICE CONNECTION", DETAIL E-3 "CONCRETE PULLBOX NON-TRAFFIC" AND DETAIL E-6 "CONCRETE PULLBOX NOTES".
 3. SEE DETAIL E-2A FOR ELECTROLIER LOCATION WITHOUT SIDEWALK MEANDER.



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Public Works Department

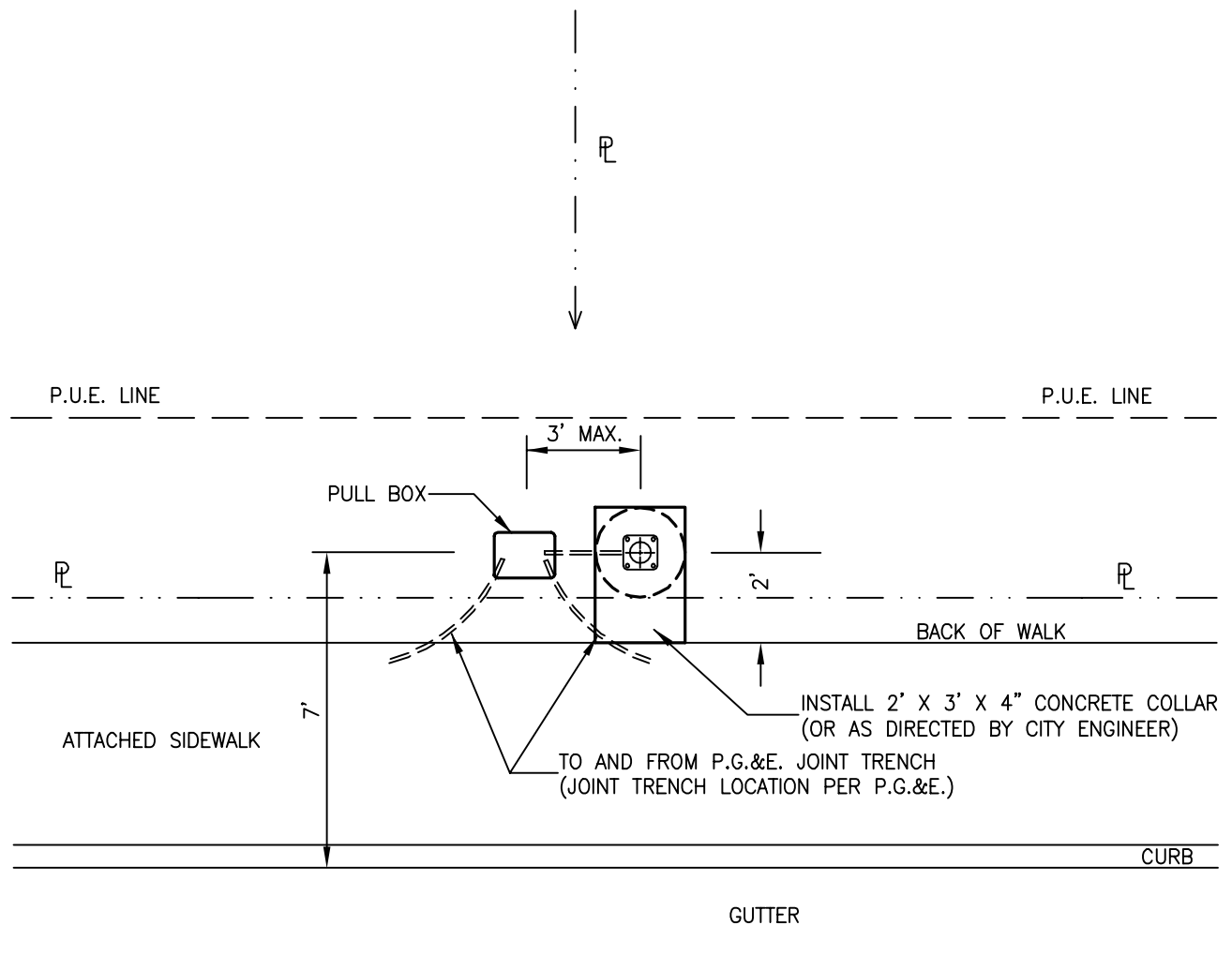
Jim Cahcraft
CITY ENGINEER

4/1/96
DATE

6/6/00
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**ELECTROLIER LOCATION
ATTACHED SIDEWALK (with)
SIDEWALK MEANDER, DETACHED,
& COMMERCIAL SIDEWALK**

DRAWING
NO.
E-2



ATTACHED SIDEWALK
(WITHOUT SIDEWALK MEANDER)

- NOTES: 1. SEE DETAIL E-10 "ELECTROLIER & BASE", DETAIL E-11 "ELECTROLIER SERVICE CONNECTION", DETAIL E-3 "CONCRETE PULLBOX NON-TRAFFIC" AND DETAIL E-6 "CONCRETE PULLBOX NOTES".
2. POLE SHALL BE CALTRANS TYPE 15, OR APPROVED EQUAL, WITH 12' MAST ARM (SEE DETAIL E10).
3. IF JOINT TRENCH FACILITIES DO NOT EXIST, STREET LIGHTING SECONDARY SHALL BE LOCATED DIRECTLY BEHIND CURB (AS SHOWN THROUGHOUT THIS SECTION).
4. PULL BOX SHALL BE LOCATED TO THE LEFT OF THE ELECTROLIER (OR DIRECTLY IN FRONT OF HAND HOLE).



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Public Works Department

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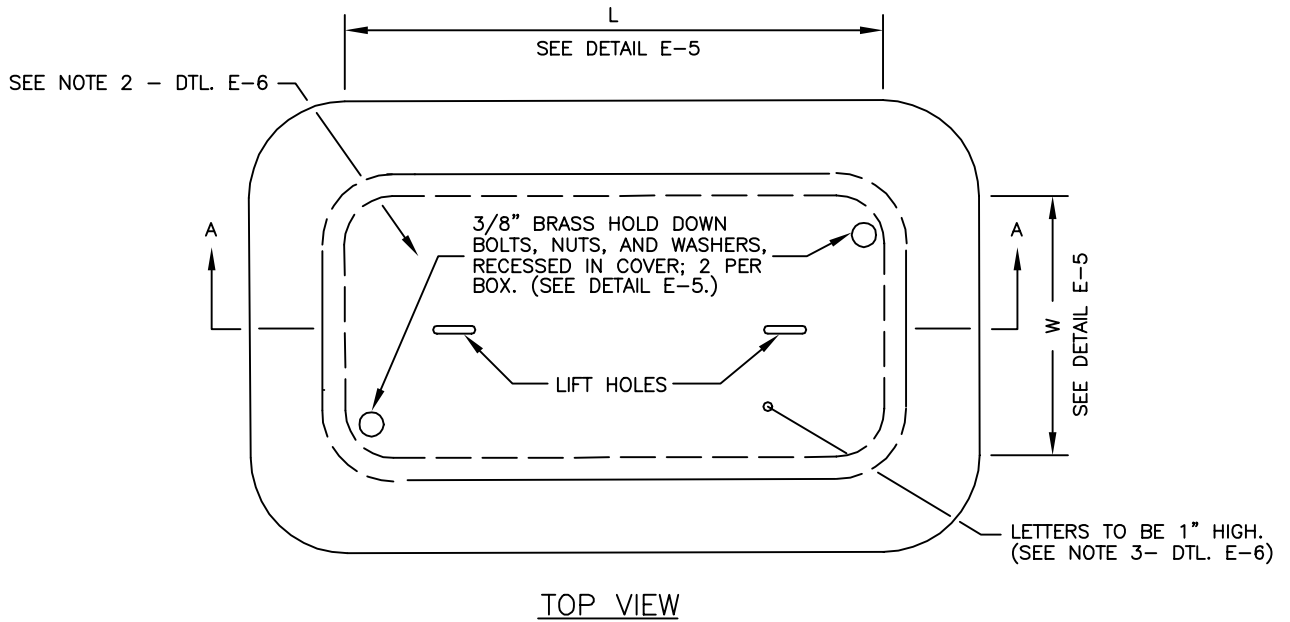
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**ELECTROLIER LOCATION
ATTACHED SIDEWALK
(without) SIDEWALK MEANDER**

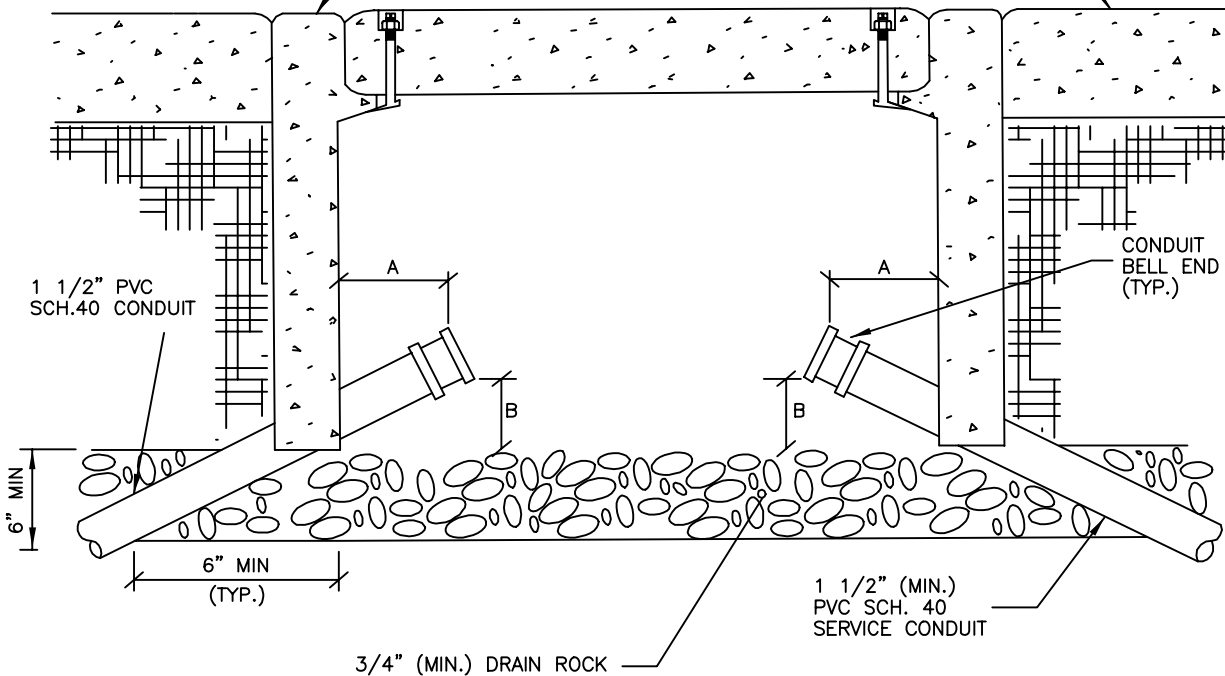
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NO.

E-2A



NO. 3 1/2 PRECAST CONCRETE
BOX MIN. WITH LID MARKED
"STREET LIGHTING", OR SIZED AS
SPECIFIED ON DRAWINGS

FIN. GRADE (SEE
NOTES 6, & 14-
DETAIL E-6)



DIMENSION

A: 1" MIN. 2" MAX. (TYP.- ALL CONDUITS)
B: 1" MIN. 2" MAX. (TYP.- ALL CONDUITS)

NOTES:

APPLICATION: PLACED IN CONDUIT RUNS IN AREAS WHERE BOX IS NOT SUBJECT TO VEHICULAR TRAFFIC
LOAD: SEE DETAILS E-5 AND E-6 FOR PULL BOX DETAILS AND NOTES.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

REVISED

CONCRETE PULLBOX
NON-TRAFFIC

DRAWING NO.
E-3



1. APPLICATION: PLACED IN CONDUIT RUNS IN AREAS WHERE BOX IS SUBJECT TO VEHICULAR TRAFFIC LOAD.
2. SEE DETAILS E-5, AND E-6 FOR PULL BOX DETAILS AND NOTES.



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CITY ENGINEER

4/1/96
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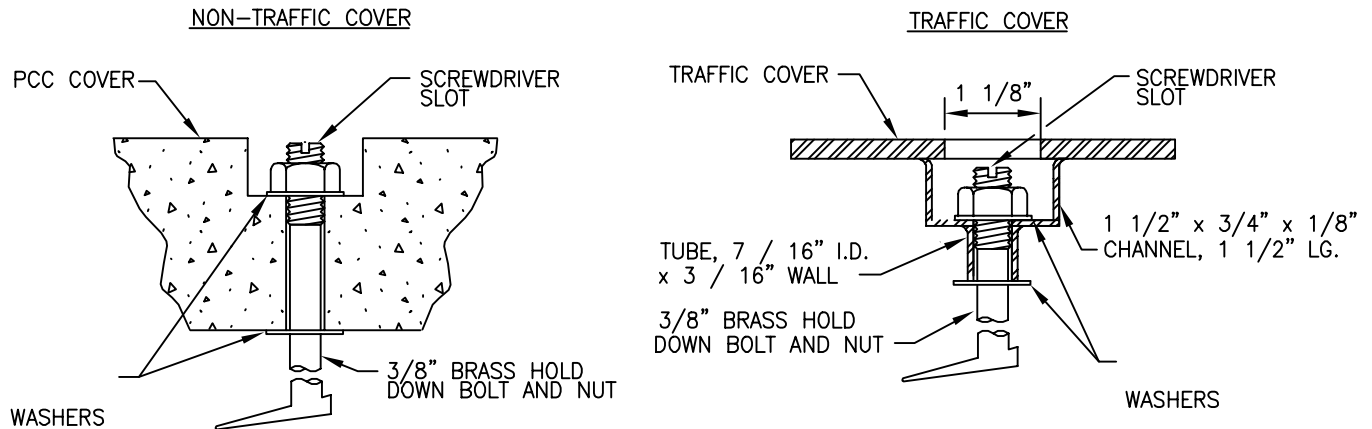
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CONCRETE PULLBOX TRAFFIC

DRAWING
NO.

E-4

HOLD DOWN BOLT DETAIL



DIMENSION TABLE

PULL BOX	CONCRETE BOX		CONCRETE COVER					TRAFFIC COVER			△ ROCK SUMP
	MIN. THICKNESS	MIN. DEPTH	L	W	R	EDGE THICKNESS	EDGE TAPER	L	W	PLATE THICKNESS	
NO. 3 1/2	1"	12"	15 3/8"	10 1/8"	1 1/8"	1 3/4"	1/8"	19 1/8"	14"	1/4"	1.8
NO. 5	1"	12"	23 1/4"	13 3/4"	1 1/4"	2"	1/8"	24 5/8"	15 1/8"	1/4"	2.6
NO. 6	1 1/2"	12"	30 5/8"	17 5/8"	1 1/4"	2"	1/8"	34 5/8"	21 7/8"	1/4"	5.3
NO. 7	1 1/2"	14"	35 3/4"	24"	1 1/4"	3"	1/8"	39 3/4"	28 1/8"	1/4"	7.7
NO. 8	1 1/2"	14"	47 3/4"	30 1/8"	1 1/4"	3"	1/8"	51 3/4"	33 5/8"	1/4"	12.2
△ = MINIMUM CUBIC FEET OF DRAIN ROCK FOR ROCK SUMP. DOES NOT APPLY TO TRAFFIC BOX. PROVIDE DRAIN ROCK FOR TRAFFIC BOX IN ACCORDANCE WITH STD. E-4											



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

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CONCRETE PULLBOX DETAILS AND DIMENSIONS

DRAWING
NO.

E-5

1. Use steel cover and special concrete footing, as shown in Detail E-4, when box is approved by the City Engineer to be installed where subject to vehicular traffic loads. Steel cover shall have embossed non-skid pattern. (See detail E-4)
2. Steel reinforcing shall be as regularly used in the standard products of the respective manufacturer.
3. Pull boxes shall be marked as follows:
 "TRAFFIC SIGNAL": For traffic signal systems with or without street lighting systems.
 "STREETLIGHTING": For streetlighting systems only.
 "SPRINKLER CONTROL": For sprinkler control systems only.
 "ELECTRICAL": For miscellaneous electrical systems only.
4. All metal covers, metal Z-bar frame, metal rings, or any metallic component of a pull box shall be bonded to a #10 AWG or larger copper grounding conductor. Bonding jumpers shall be solid or braided copper equivalent to #10 AWG and shall be attached to a 1/4"-20 stainless steel screw (drill and tap as required) and approved grounding lug.
5. The pullbox cover opening shall be 1/8" greater in length and width.
6. The City Engineer shall approve installation of pullboxes in a sidewalk area except as shown in Dtl. E-2, Commercial Sidewalk. The depth of the pullbox shall be adjusted so that the top of the box is flush with the surrounding sidewalk.
7. Pull boxes shall not be installed within the boundary of new or existing wheelchair ramps or driveways.
8. All pull boxes shall be located within the City Right-Of-Way, or in an officially dedicated Public Utility Easement (upon the approval of the City Engineer).
9. Drain rock cushion shall extend a minimum of 6" beyond inside walls of non-traffic boxes.
10. Conduits shall terminate not more than 2" and not less than 1" inside the box, and shall be not less than 1" nor more than 2" clear from the bottom of the box.
11. Conduits shall enter the box with manufactured long radii type or standard 45° elbow.
12. Pull box shall be size No. 3 1/2 minimum unless approved otherwise.
13. Pull boxes shall be placed at intervals not exceeding 200' in conduit runs.
14. Install pull box extension(s) as required to set top of pull box flush with surrounding grade.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

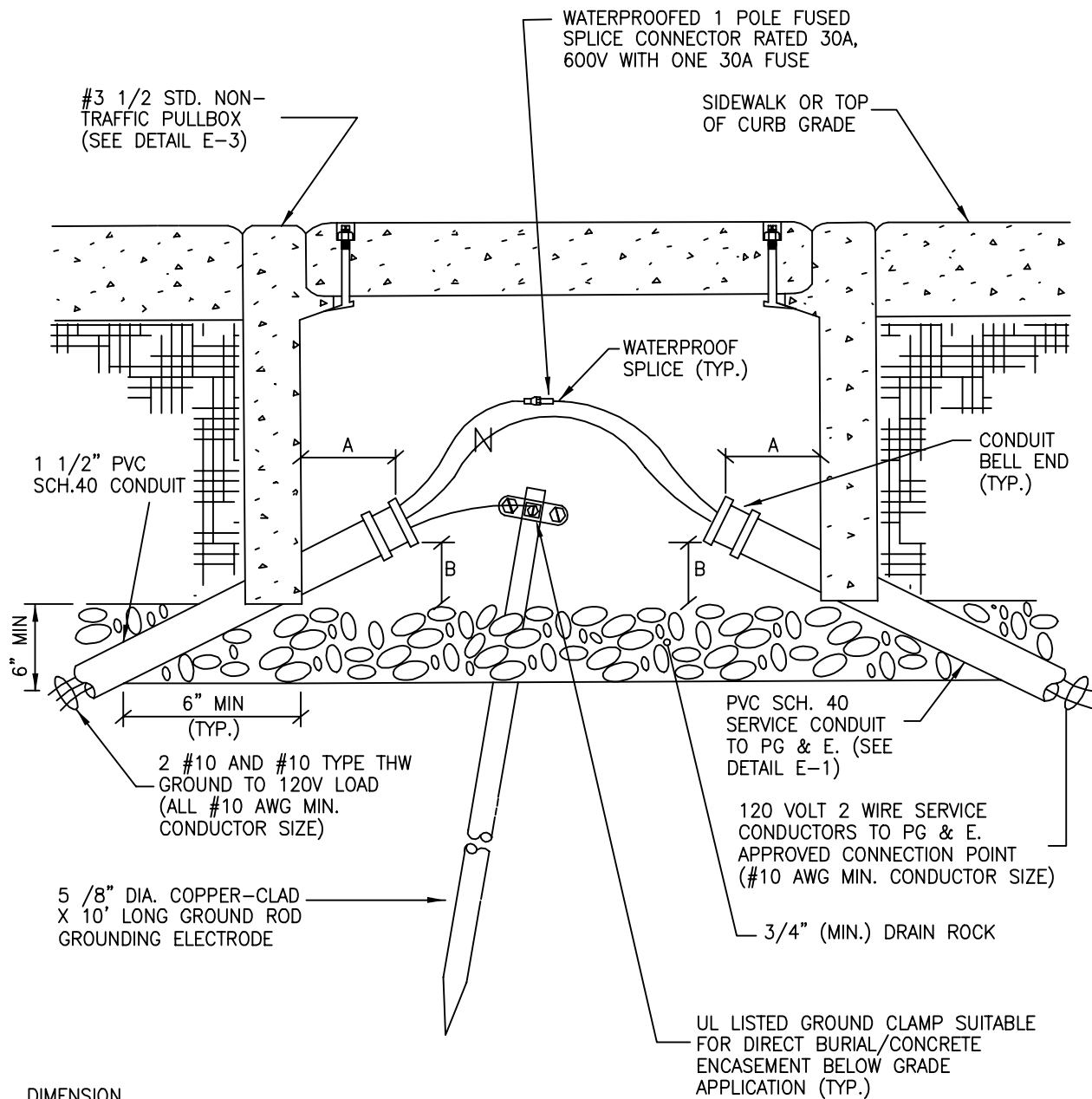
4/1/96
DATE

REVISED

CONCRETE PULLBOX NOTES

DRAWING
NO.

E-6



DIMENSION

- A: 1" MIN. 2" MAX. (TYP.- ALL CONDUITS)
 B: 1" MIN. 2" MAX. (TYP.- ALL CONDUITS)

NOTES:

- SEE DETAILS E-5, AND E-6 NOTES.
- PROVIDE 3' OF SLACK IN ALL CONDUCTORS IN ACCORDANCE WITH SPECIFICATIONS. (SLACK NOT SHOWN.)



City of Morgan Hill
Public Works Department

Jim Cahcraft
CITY ENGINEER

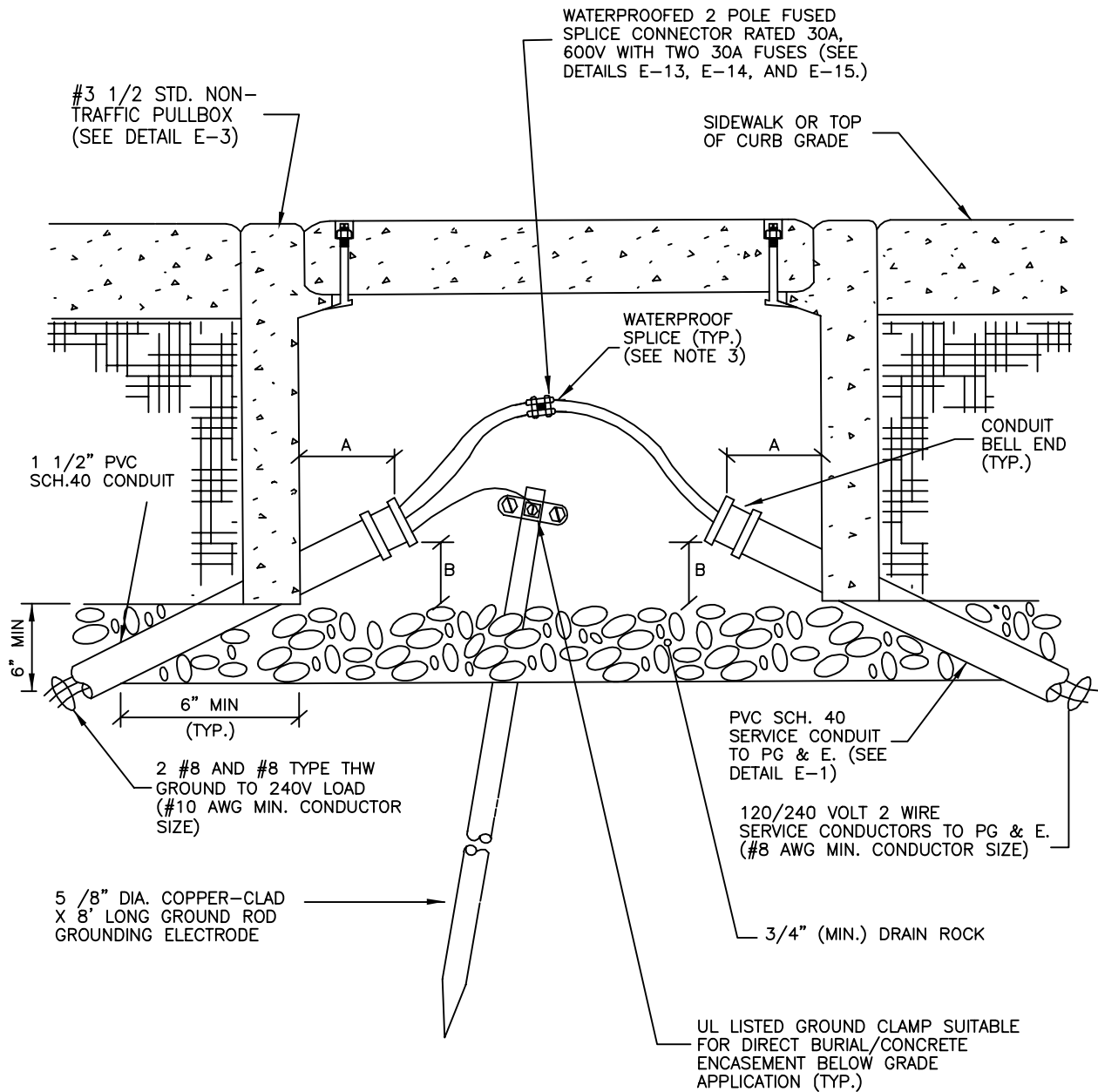
4/1/96
DATE

6/8/00
REVISED

UNDERGROUND STREETLIGHT 120V SERVICE CONNECTION

DRAWING
NO.

E-7



DIMENSION

- A: 1" MIN. 2" MAX. (TYP.- ALL CONDUITS)
 B: 1" MIN. 2" MAX. ABOVE GROUT (TYP.- ALL CONDUITS)

NOTES:

- SEE DETAILS E-5, AND E-06 NOTES.
- PROVIDE 3' OF SLACK IN ALL CONDUCTORS IN ACCORDANCE WITH SPECIFICATIONS. (SLACK NOT SHOWN.)



City of Morgan Hill
Public Works Department

Jim Oshroff
CITY ENGINEER

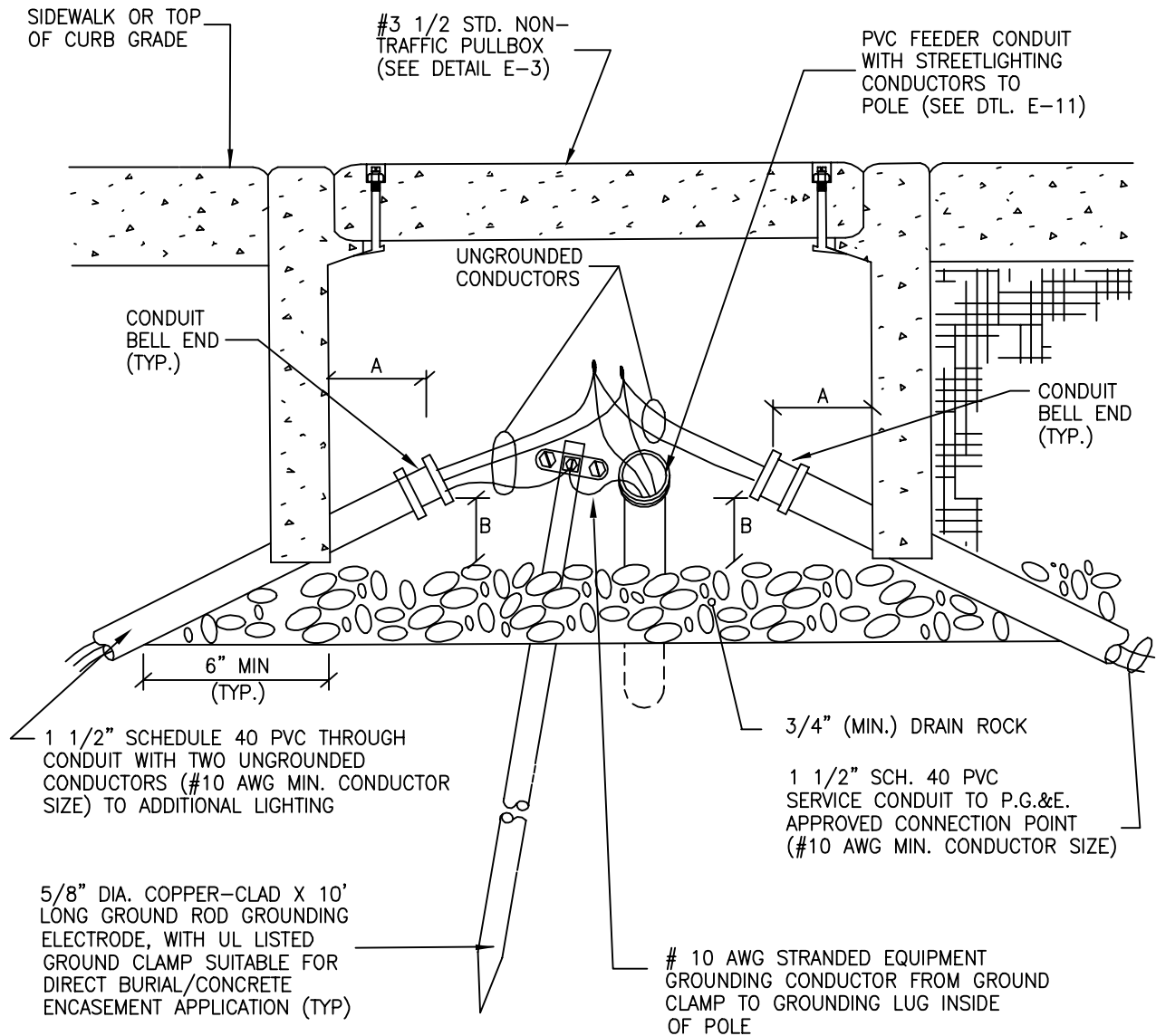
4/1/96
DATE

6/8/00
REVISED

UNDERGROUND STREETLIGHT 240V SERVICE CONNECTION

DRAWING
NO.

E-8



DIMENSION

- A: 1" MIN. 2" MAX. (TYP.- ALL CONDUITS)
 B: 1" MIN. 2" MAX. (TYP.- ALL CONDUITS)

NOTES:

- SEE DETAILS E-5, AND E-6 NOTES.
- PROVIDE 3' OF SLACK IN ALL CONDUCTORS IN ACCORDANCE WITH SPECIFICATIONS. (SLACK NOT SHOWN.)
- 240V STREETLIGHTING CIRCUIT SHOWN. 120V STREETLIGHTING SIMILAR EXCEPT NEUTRAL CONDUCTOR IS PRESENT.



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Public Works Department

Jim Oakcraft
CITY ENGINEER

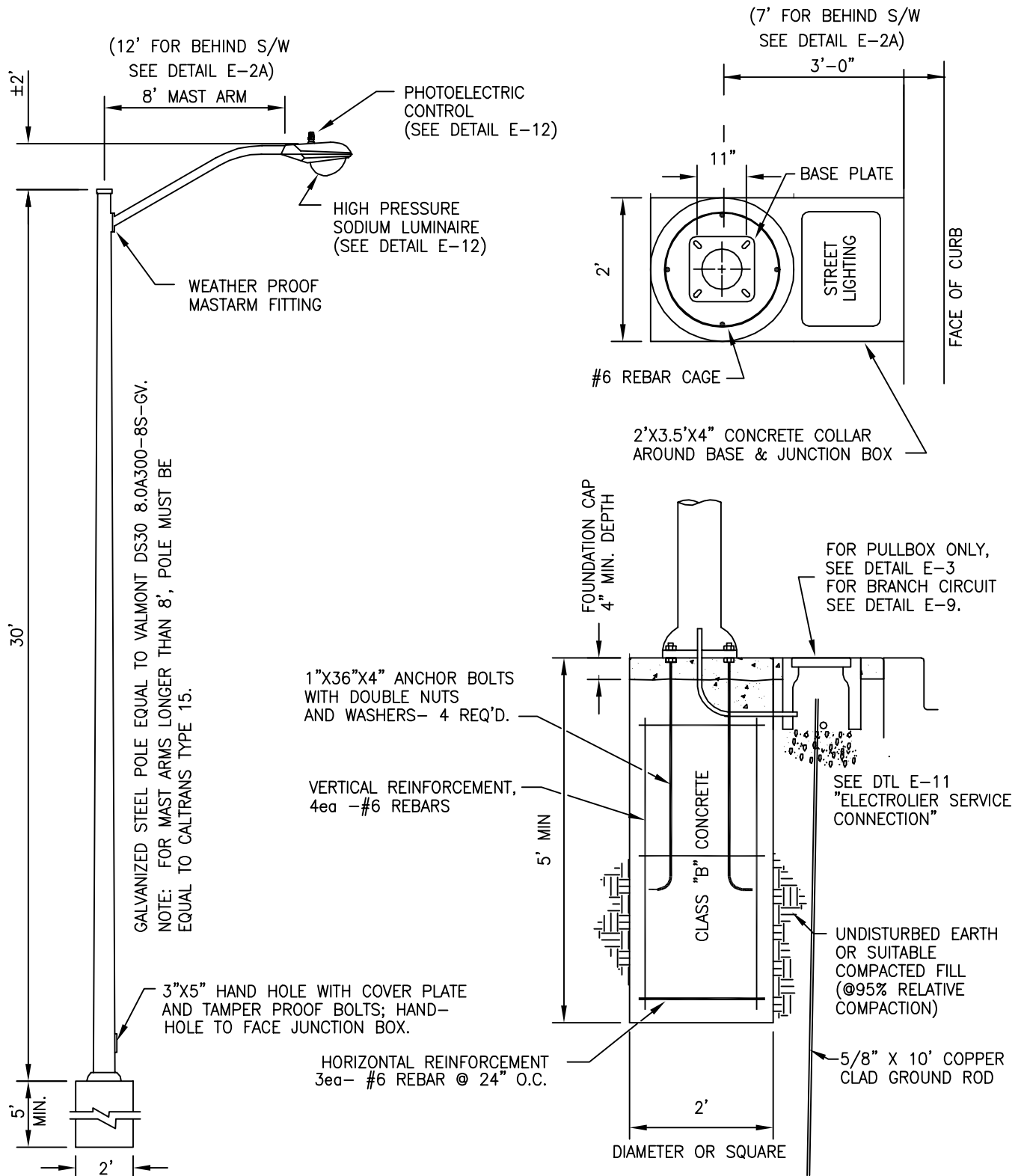
4/1/96
DATE

REVISED

STREETLIGHT-BRANCH CIRCUIT PULLBOX

DRAWING
NO.

E-9



NOTE: THE APPLICATION SHOWN REFERENCES ELECTROLIERS INSTALLED WITH A MEANDERING SIDEWALK.
FOR ELECTROLIERS LOCATED BEHIND THE SIDEWALK USE DETAIL E-2A FOR LOCATION DIMENSIONS.



City of Morgan Hill

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Jim Oakcraft
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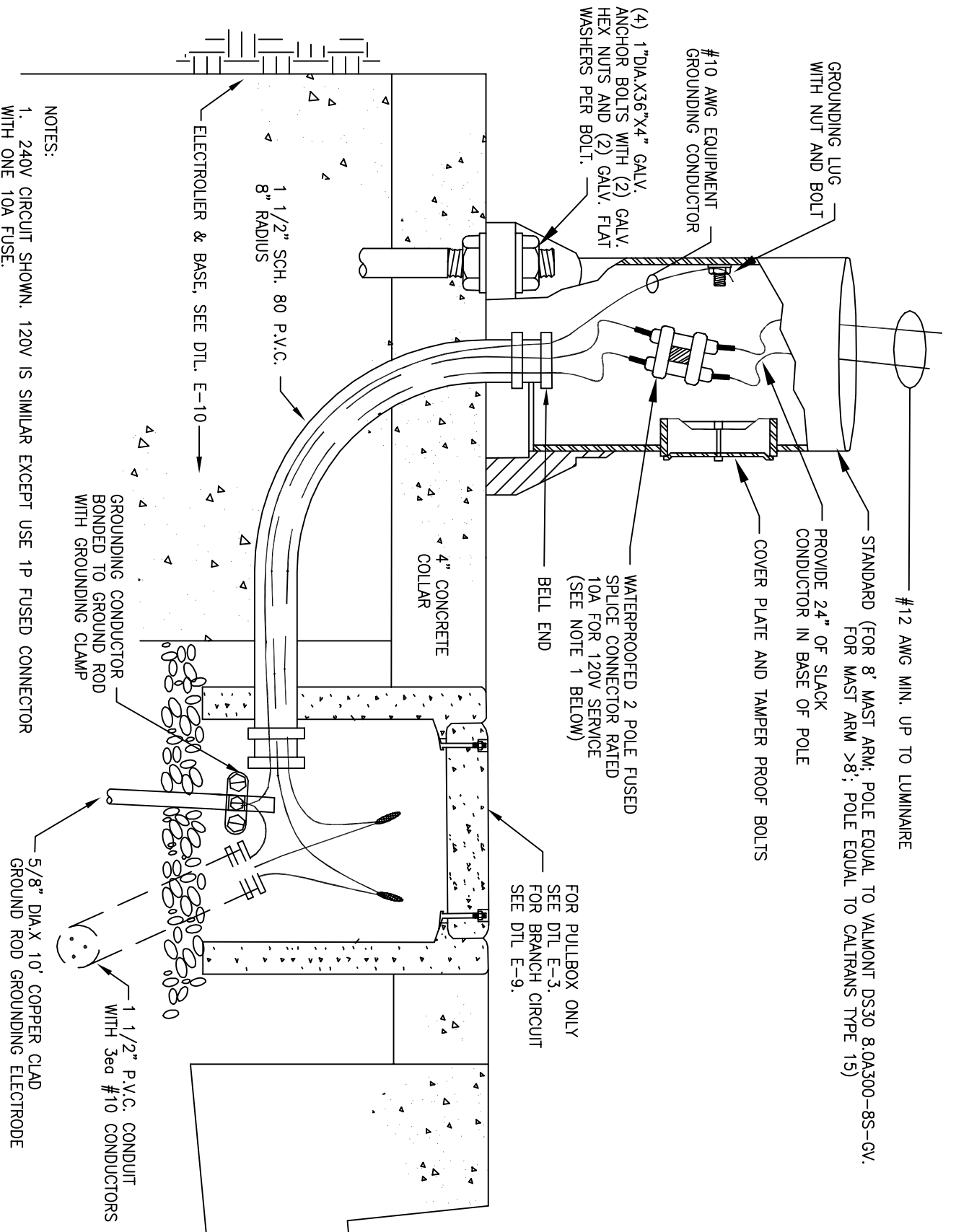
4/1/96
DATE

6/6/00
REVISED

ELECTROLIER & BASE

DRAWING
NO.

E-10



- NOTES:
1. 240V CIRCUIT SHOWN. 120V IS SIMILAR EXCEPT USE 1P FUSED CONNECTOR WITH ONE 10A FUSE.
 2. THIS DETAIL SHOULD BE PROVIDED WITH DETAIL E-1, E-10, E-14 AND E-16



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Public Works Department

Jim Caher
CITY ENGINEER

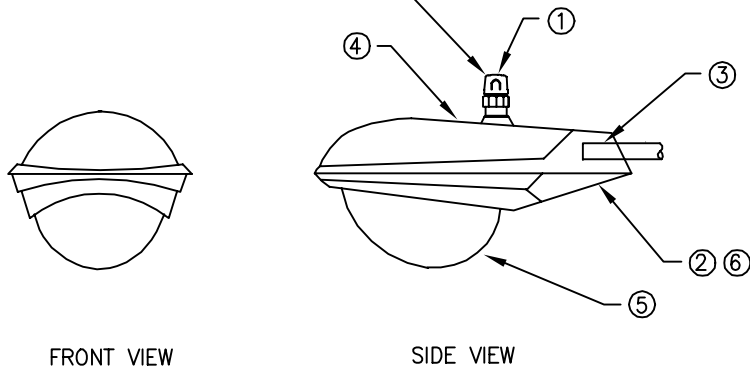
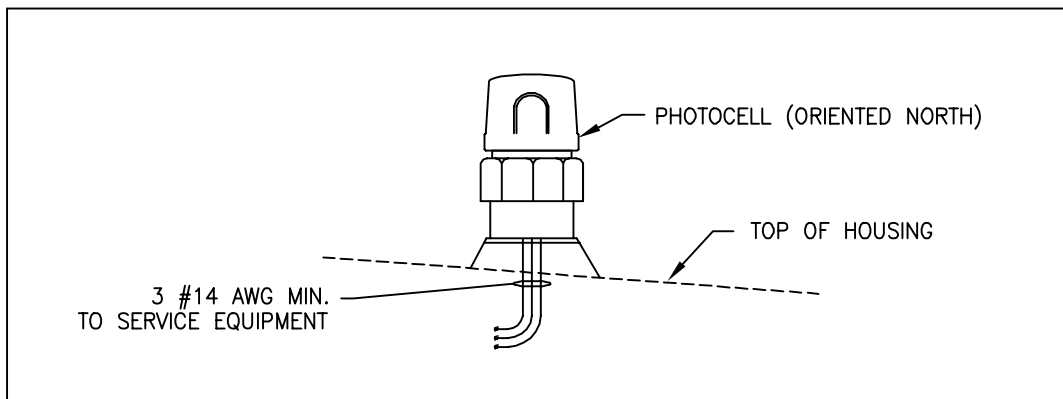
4/1/96
DATE

8/6/98
REVISED

ELECTROLIER SERVICE CONNECTION

DRAWING
NO.

E-11



HIGH PRESSURE SODIUM

NOTES:

- ① EEI NEMA 3 PRONG PHOTOCONTROL WITH LOCKING RECEPTACLE OR SHORTING CAP AS REQUIRED
- ② LATCHED AND HINGED DIE CAST ALUMINUM POWER POD ASSEMBLY WITH QUICK BALLAST DISCONNECT
- ③ INTERNAL FOUR BOLT SLIPFITTER ASSEMBLY ADJUSTABLE FOR 1 1/4" AND 2" MAST ARMS.
- ④ DIE CAST ALUMINUM HOUSING (UPPER AND LOWER SECTIONS)
- ⑤ PRISMATIC BOROSILICATE GLASS REFRACTOR WITH HIGH TEMPERATURE POLYESTER FIBER GASKET.
- ⑥ BUILT-IN MULTI-TAP QUAD BALLAST.

WATTAGE SHALL BE 100W FOR RURAL AND LOCAL STREETS AND 150W FOR ARTERIAL AND COLLECTOR STREETS. SEE DETAIL E-16



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Public Works Department

Jim Oakcraft
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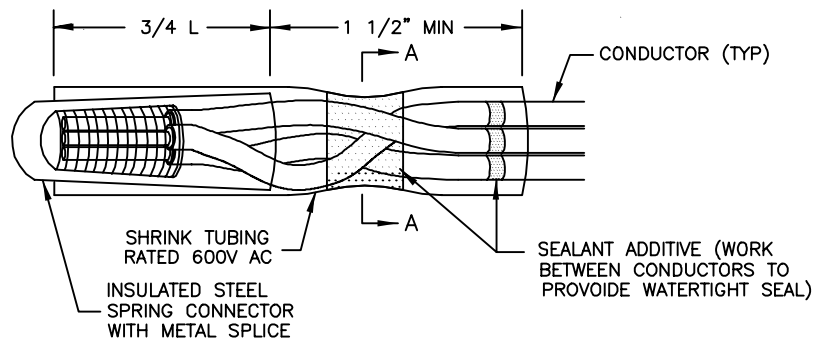
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DATE

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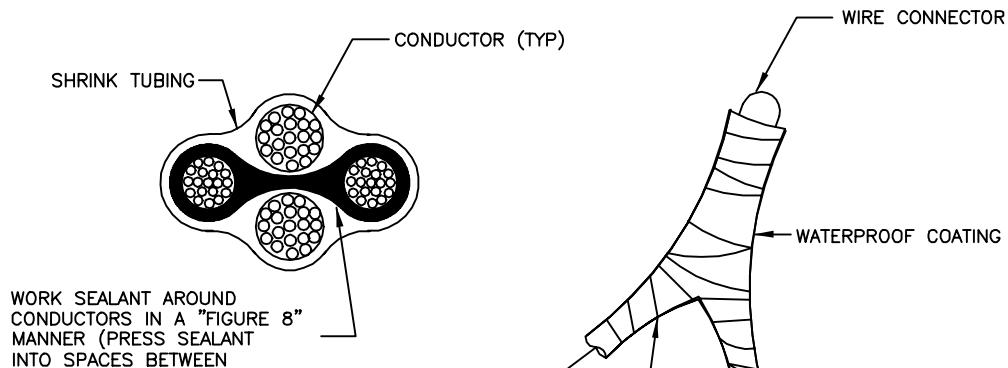
TYPICAL LUMINAIRE

DRAWING
NO.

E-12

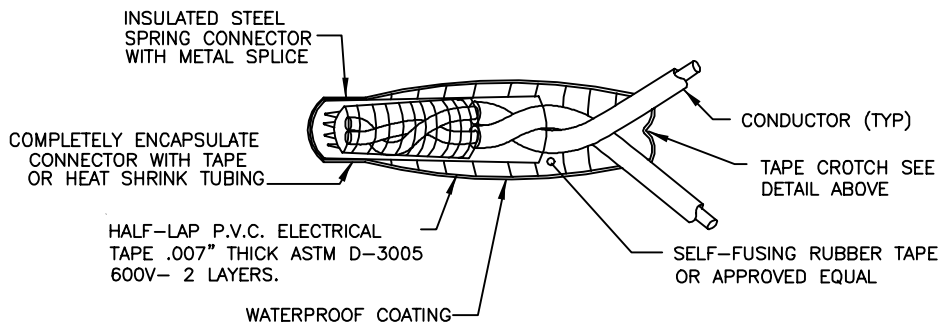


SPLICE WITH SHRINK TUBING



SECTION A - A

CROTCH DETAIL



SPLICE WITH OUT SHRINK TUBING

NOTES:

1. PAINT ALL TAPED SPLICES WITH ELECTRICAL WATERPROOF COATING.
2. DO NOT EXCEED SPRING CONNECTOR MANUFACTURER'S RECOMMENDATIONS FOR AWG COPPER WIRE SPLICING COMBINATIONS.



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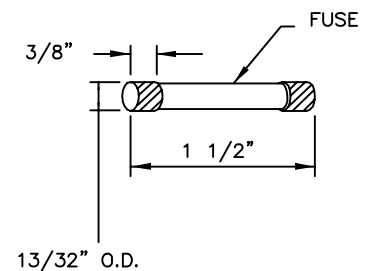
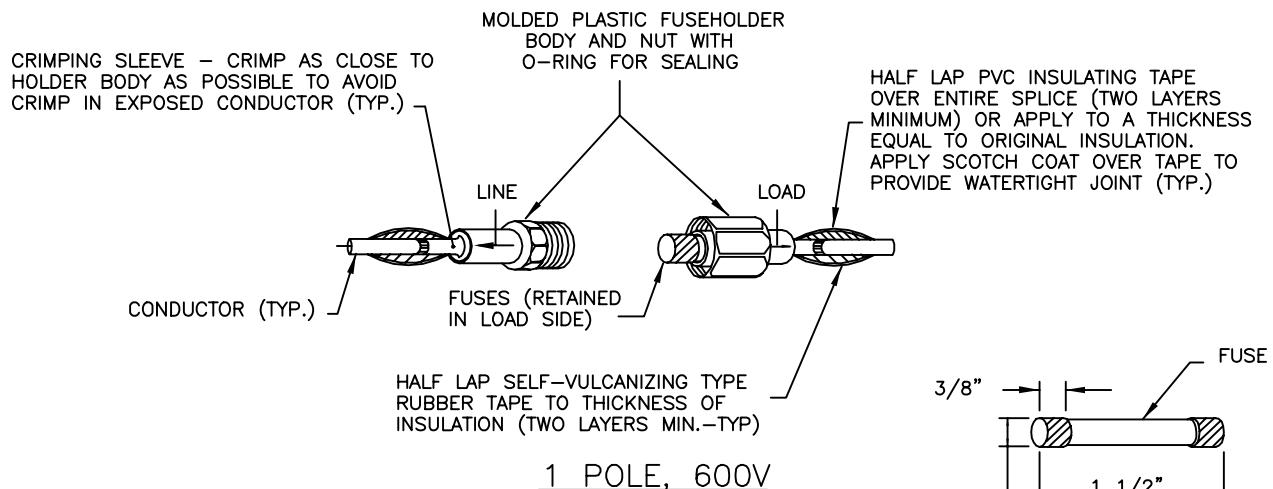
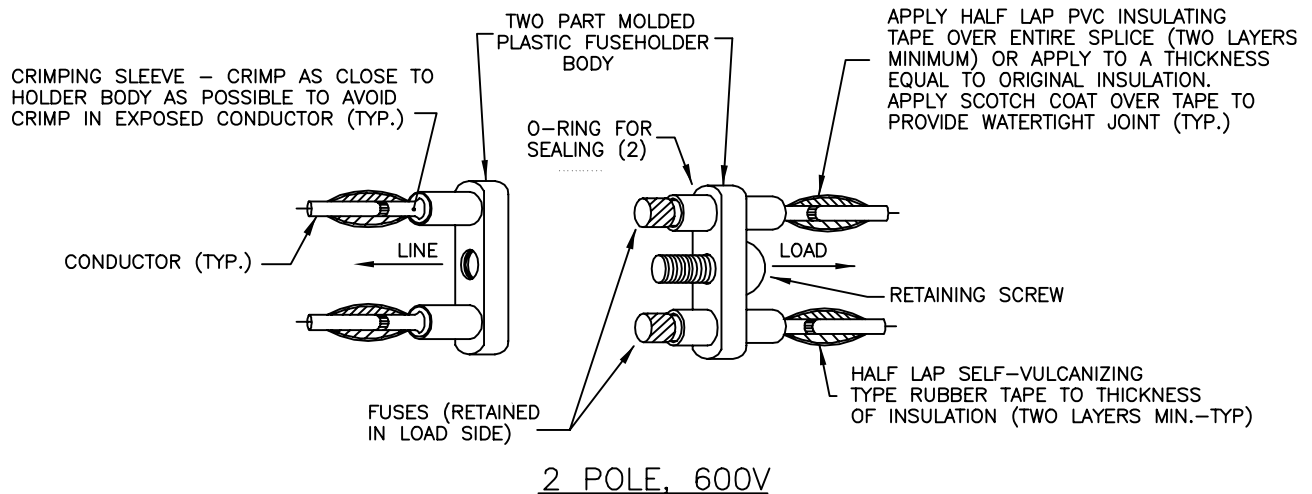
Jim Oakcraft
CITY ENGINEER

4/1/96
DATE

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CONDUCTOR SPLICING
SPRING CONNECTORS

DRAWING
NO.
E-13



NOTES:

1. STRIP ENDS OF CONDUCTOR INSULATION.
2. CRIMP CONNECTOR WITH TOOL DESIGNED FOR THIS PURPOSE.
3. AMPERE RATING OF FUSEHOLDERS SHALL BE RATED 30A MIN.
4. VOLTAGE RATING OF FUSEHOLDERS SHALL BE 600V MIN.
5. PAINT ALL FINISHED TAPED CONNECTIONS WITH ELECTRICAL INSULATING COMPOUND (COATING) TO PROVIDE WATERTIGHT JOINTS.
6. FUSEHOLDERS SHALL BE TRON TYPE "HEX" (240V) OR "HEB" (120V) AS MANUFACTURED BY BUSSMAN DIV. MCGRAW-EDISON CO. OR APPROVED EQUAL. REJECTION TYPE FUSEHOLDERS ARE NOT ACCEPTABLE.
7. USE 10A, 250V A.C. RATED, GENERAL PURPOSE NON-TIME DELAY TYPE "BAF" OR "BAN" FUSES AS MANUFACTURED BY BUSSMAN DIV. OR APPROVED EQUAL FOR INDIVIDUAL STREETLIGHT FUSING APPLICATIONS.
8. FUSE EACH 240V OR 120V STREETLIGHT LUMINAIRE INDIVIDUALLY WITH A 10A FUSE.
9. USE 30A, 250V A.C. RATED, TRON TIME-DELAY TYPE "FNQ" FUSES AS MANUFACTURED BY BUSSMAN DIV. OR APPROVED EQUAL FOR SERVICE APPLICATIONS AS REQUIRED.
10. FUSES FOR UNDERGROUND FED ELECTROLIER SHALL BE INSTALLED IN THE BASE OF THE ELECTROLIER. SEE DTL. E-11



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4/1/96
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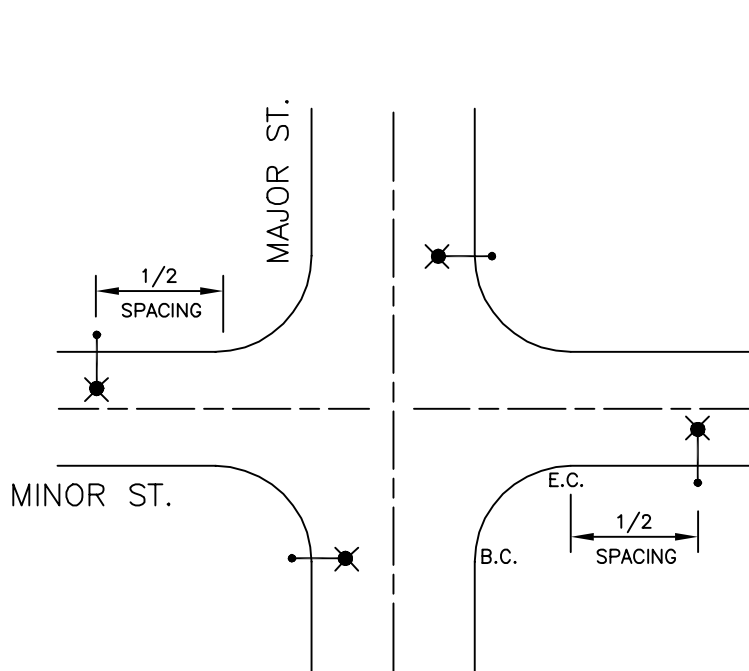
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FUSED SPLICE CONNECTORS

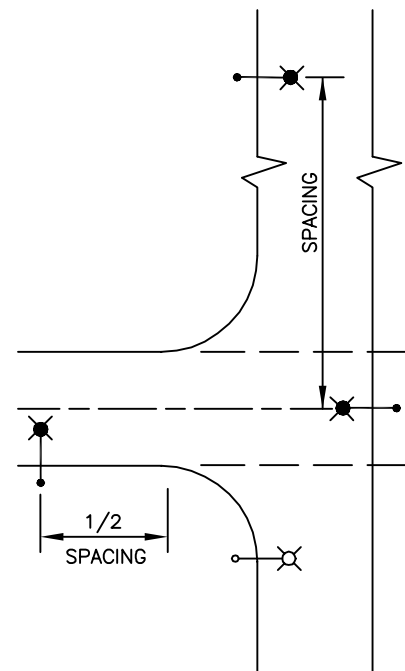
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E-14

ROAD TYPE	WATTAGE OF HIGH PRESSURE SODIUM	SPACING
ARTERIAL	150	160' - 180' OPPOSITE
COLLECTOR	150	130' - 140' STAGGERED
LOCAL	100	130' - 140' STAGGERED
RURAL	100	380' - 420' STAGGERED



4-WAY INTERSECTION SPACING



"T" INTERSECTION SPACING

- ✱ "BASIC" ELECTROLIER
- ✱ ADDITIONAL (WHEN REQUIRED)



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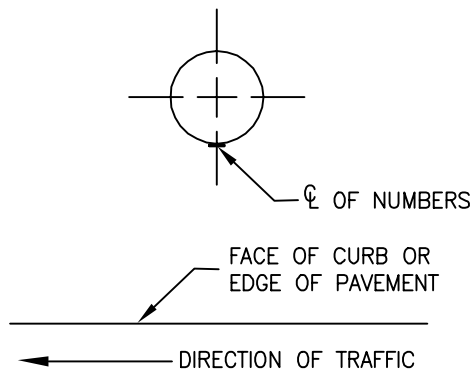
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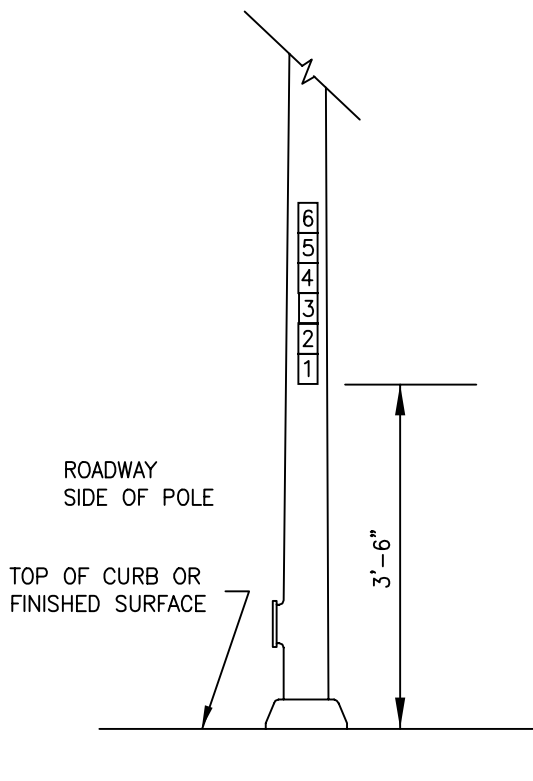
ELECTROLIER SPACING

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E-15

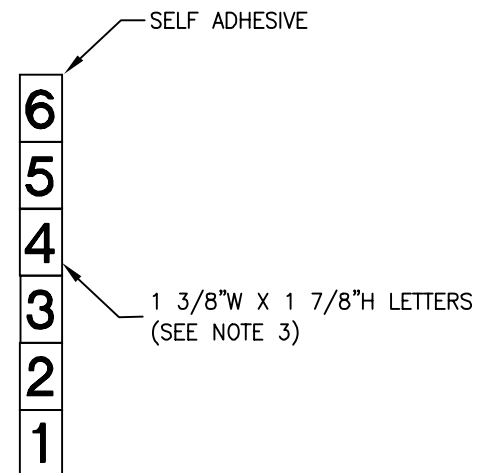


PLAN VIEW
N.T.S.



NUMBER FORMAT
N.T.S.

- NOTES
1. STICK-ON REFLECTIVE NUMBERS AND LETTERS SHALL BE PLACED ON ALL ELECTROLIERS AND TRAFFIC SIGNAL POLES.
 2. THE NUMBERS AND EDGE SEALER SHALL BE PLACED ON THE EQUIPMENT WHERE DESIGNATED BY THE PLANS OR THE ENGINEER. THE CONTRACTOR SHALL OBTAIN THE SPECIFIC DESIGNATION FROM THE ENGINEER.
 3. REFLECTIVE NUMBERS AND LETTERS SHALL HAVE WHITE REFLECTIVE ADHESIVE SHEETING, 1 3/8" IN WIDTH, WITH 1 7/8" IN HEIGHT BLACK SERIES D LETTERS AND NUMBERS. THE LETTERS AND NUMBERS MAY BE SCREENED ON TO THE REFLECTIVE SHEETING OR MAY BE DIE-CUT AND ADHESIVELY ATTACHED.
 4. THE LABELS FOR EACH LOCATION MAY BE INDIVIDUAL CHARACTERS APPLIED OR A CONTINUOUS STRIP APPLIED. THE LABELS SHALL BE VERTICALLY ARRANGED WITH THE BOTTOM HEIGHT PLACED 3'-6" FROM THE TOP OF CURB OR FINISHED GRADE.
 5. REFLECTIVE SHEETING, NUMBERS AND LETTERS SHALL COMPLY WITH THE RESPECTIVE SPECIFICATIONS IN THE DEPARTMENT OF TRANSPORTATION PUBLICATION "SPECIFICATIONS FOR ALUMINUM REFLECTIVE SHEETING SIGNS".
 6. REFLECTIVE NUMBERS SHALL BE APPLIED TO A CLEAN SURFACE. THE EDGES OF THE NUMBERS SHALL BE TREATED WITH EDGE SEALER.
 7. WHERE NEW NUMBERS ARE TO BE PLACED ON EXISTING OR RELOCATED EQUIPMENT, THE EXISTING NUMBERS SHALL BE REMOVED AND THE SURFACE SHALL BE CLEANED.



NUMBER DETAIL
N.T.S.



City of Morgan Hill
Public Works Department

Jim Oakcraft
CITY ENGINEER

3/20/01
DATE


REVISED

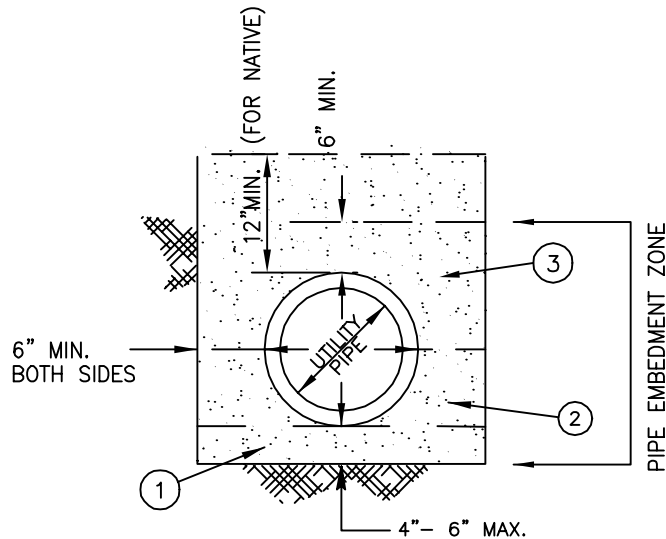
POLE NUMBERING
FOR TRAFFIC SIGNAL POLES
AND ELECTROLIERS

DRAWING
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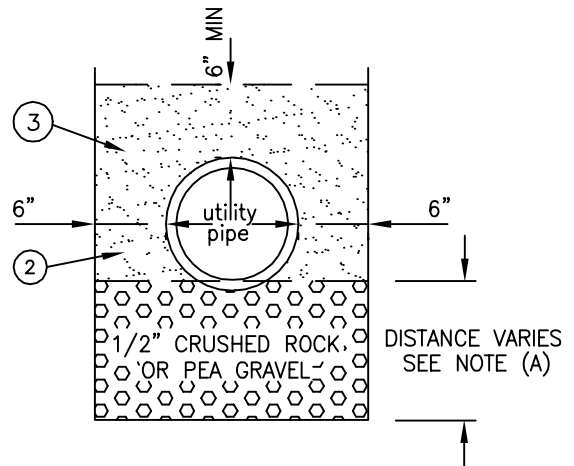
E-16

THIS SHEET HAS BEEN INTENTIONALLY LEFT BLANK

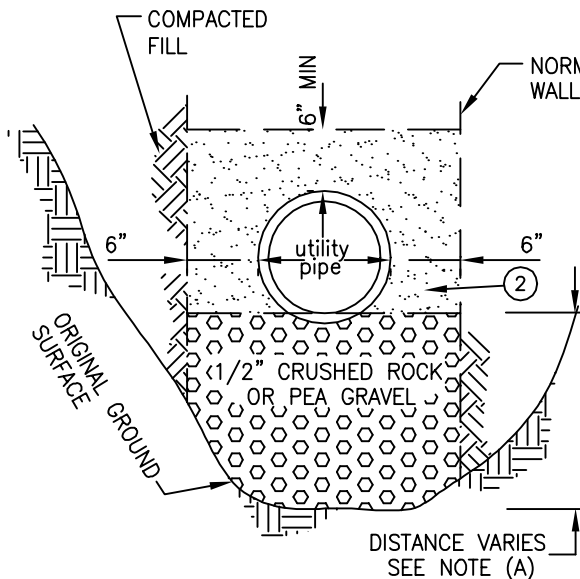
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APPROVED BY: _____ DATE: _____		U-1



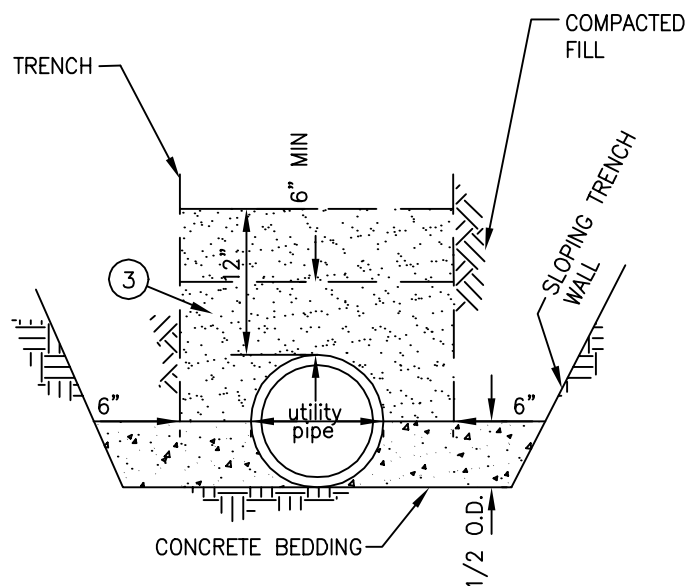
CASE "A": NORMAL TRENCH
NTS



CASE "B": WET & SPONGY GROUND
NTS



CASE "C": FILLED GROUND
NTS



CASE "D": BOTTOM OF TRENCH
EXCEEDS NORMAL TRENCH WIDTH
NTS

NOTES:

- (A) DISTANCE WILL VARY BASED UPON FIELD CONDITIONS, AND SOILS REPORT RECOMMENDATIONS.
- (B) PIPE EMBEDMENT SHALL CONFORM TO THE PRACTICE RECOMMENDED FOR CLASS III MATERIAL (SAND) IN ASTM D 2321 "UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS".
- (1.) SAND BEDDING, HAND PLACED AND COMPACTED TO MIN. 90% RELATIVE COMPACTION, 4" MIN. TO 6" MAX.
- (2.) HAUNCHING; HAND PLACED AND COMPACTED TO MIN. 90% RELATIVE COMPACTION TO SPRING LINE OF PIPE.
- (3.) INITIAL BACKFILL, INSTALL AND COMPACT TO A MINIMUM OF 6" ABOVE PIPE CROWN (12" MIN. FOR NATIVE).



City of Morgan Hill
Public Works Department

Jim Cahcraft
CITY ENGINEER

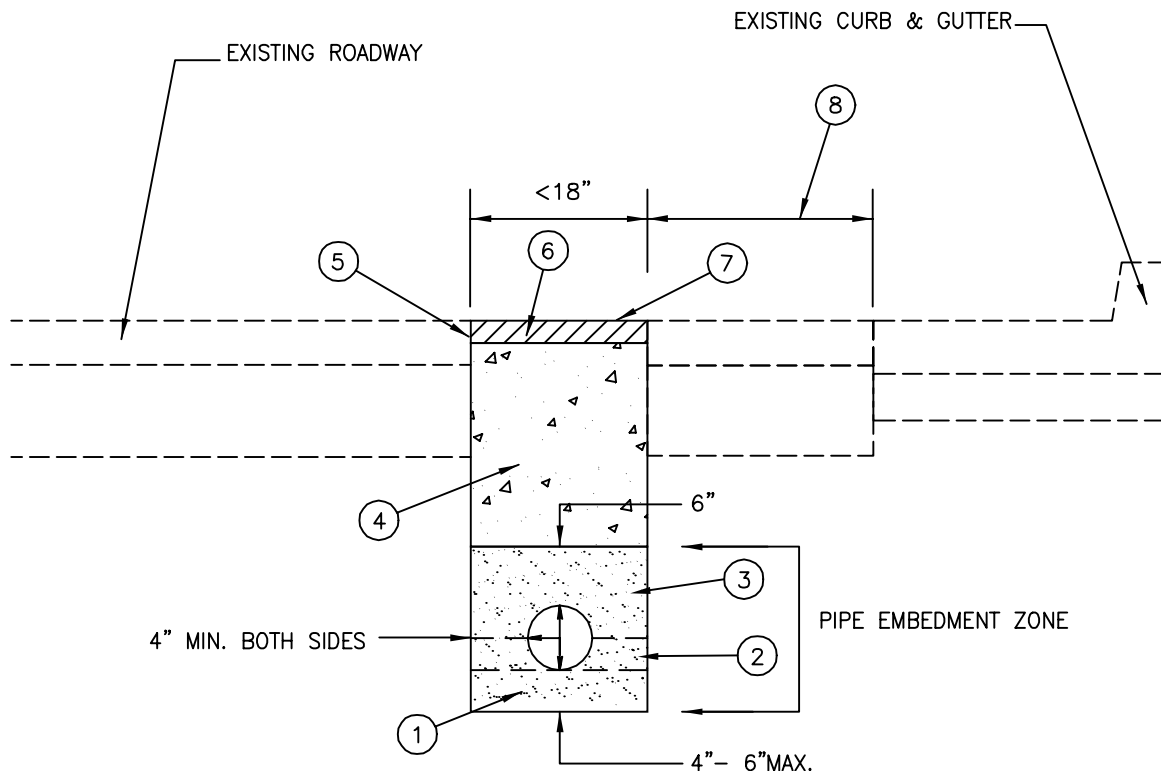
4/1/96
DATE

REVISED

TRENCH BEDDING

DRAWING
NO.

U-2



NOTES:

1. PIPE EMBEDMENT SHALL CONFORM TO THE PRACTICE RECOMMENDED FOR CLASS III MATERIAL (SAND) IN ASTM D 2321 "UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS".
- ①. SAND BEDDING, HAND PLACED AND COMPACTED TO 90% RELATIVE COMPACTION, 4" MIN. TO 6" MAX.
- ②. HAUNCHING, HAND PLACED AND COMPACTED TO 90% RELATIVE COMPACTION TO SPRING LINE OF PIPE.
- ③. INITIAL BACKFILL, INSTALL AND COMPACT TO A MINIMUM OF 6" ABOVE PIPE CROWN.
- ④. 1.5 SACK CEMENT SLURRY BACK FILL. CEMENT SLURRY BACKFILL TO BE CURED PER MANUFACTURERS REQUIREMENTS PRIOR TO PAVING.
- ⑤. SAW CUT EXISTING PAVEMENT, ALL VERTICAL EDGES SHALL BE TACKED PRIOR TO PAVING.
- ⑥. 1 1/2" AC (1/2" TYPE B).
- ⑦. SURFACE SHALL BE FOG SEALED AFTER PAVING. EXISTING ROADWAY SURFACE SHALL BE REPLACED IN KIND (OIL & SCREENED, SLURRY SEAL, ETC.)
- ⑧. IF DISTANCE IS LESS THAN 3 FEET, PAVEMENT RESTORATION SHALL EXTEND TO LIP OF GUTTER.



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Public Works Department

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CITY ENGINEER

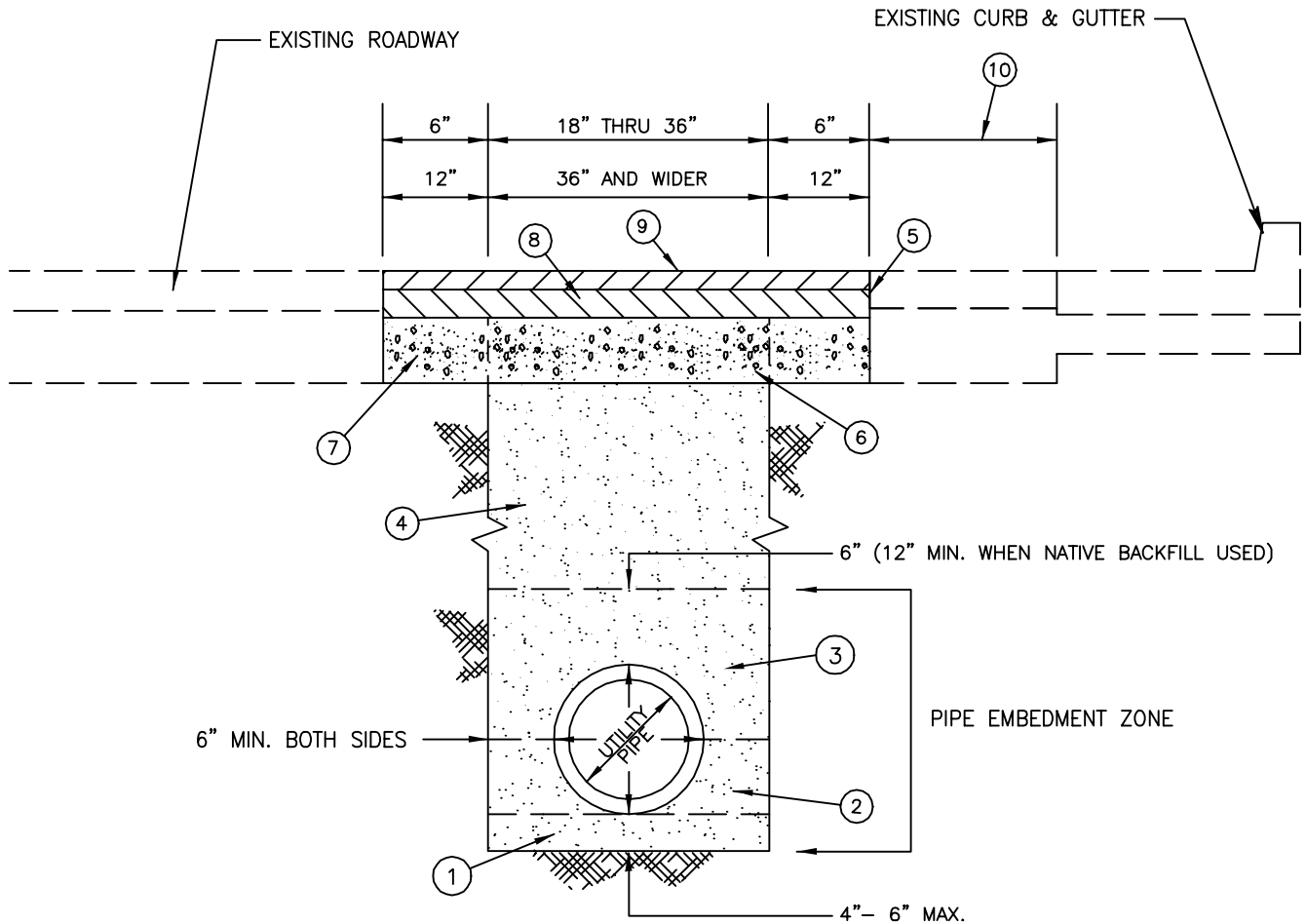
4/1/96
DATE

REVISED

TRENCH RESTORATION/BACKFILL
FOR
TRENCH WIDTHS LESS THAN 18"

DRAWING
NO.

U-3



NOTES:

- A. PIPE EMBEDMENT SHALL CONFORM TO THE PRACTICE RECOMMENDED FOR CLASS III MATERIAL (SAND) IN ASTM D 2321 "UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS".
- ①. SAND BEDDING, HAND PLACED AND COMPACTED TO MIN. 90% RELATIVE COMPACTION, 4" MIN. TO 6" MAX.
- ②. HAUNCHING; HAND PLACED AND COMPACTED TO MIN. 90% RELATIVE COMPACTION TO SPRING LINE OF PIPE.
- ③. INITIAL BACKFILL, INSTALL AND COMPACT TO A MINIMUM OF 6" ABOVE PIPE CROWN (12" MIN. FOR NATIVE).
- ④. 100% SAND BACKFILL COMPACTED IN LIFTS TO 95% RELATIVE COMPACTION (FOR NATIVE BACKFILL OPTION, SEE GENERAL NOTES). FLOODING OR JETTING SHALL ONLY BE ALLOWED UPON CITY ENGINEER APPROVAL.
- ⑤. SAW CUT EXISTING PAVEMENT, ALL VERTICAL EDGES SHALL BE TACKED PRIOR TO PAVING.
- ⑥. 8" (MIN) CLASS 2 AGGREGATE BASE ROCK, COMPACTED TO 95% RELATIVE COMPACTION.
- ⑦. AT THE DISCRETION OF THE PROJECT INSPECTOR, THE EXISTING BASE ROCK MAY REMAIN FOR THIS TRENCH WIDTH PROVIDED THAT THE BASE ROCK IS COMPACTED AND IS NOT CONTAMINATED.
- ⑧. MATCH EXIST. AC SECTION OR 6" MIN. IN 2 LIFTS. BASE COURSE TO BE 3/4" TYPE B AC, AND SURFACE COURSE TO BE 1/2" TYPE B AC.
- ⑨. SURFACE SHALL BE FOG SEALED AFTER PAVING. EXISTING ROADWAY SURFACE SHALL BE REPLACED IN KIND.
- ⑩. IF DISTANCE IS LESS THAN 3 FEET, PAVEMENT RESTORATION SHALL EXTEND TO LIP OF GUTTER.



City of Morgan Hill
Public Works Department

Jim Cahcraft
CITY ENGINEER

4/1/96
DATE

REvised

**TRENCH RESTORATION/BACKFILL
FOR PIPE SIZES
GREATER THAN 6"**

DRAWING
NO.

U-4